Smithsonian

November 1995

Vermeer's mysterious woman continues to captivate us **(p. 110)**

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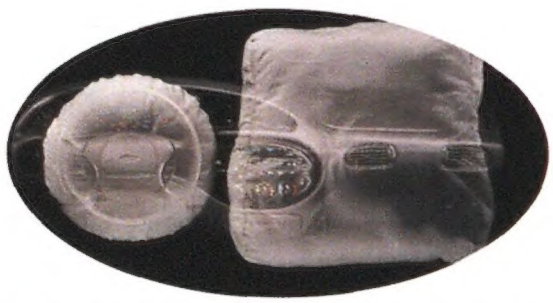

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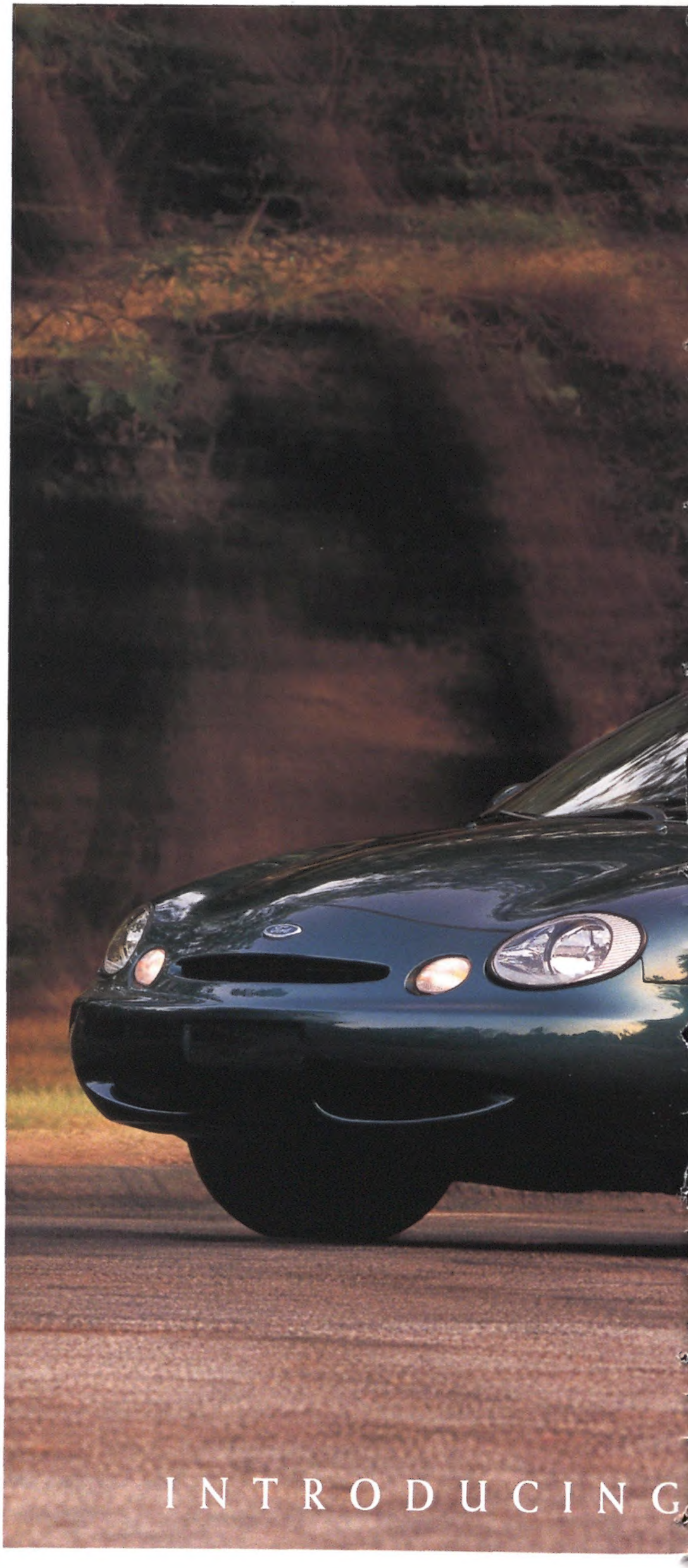

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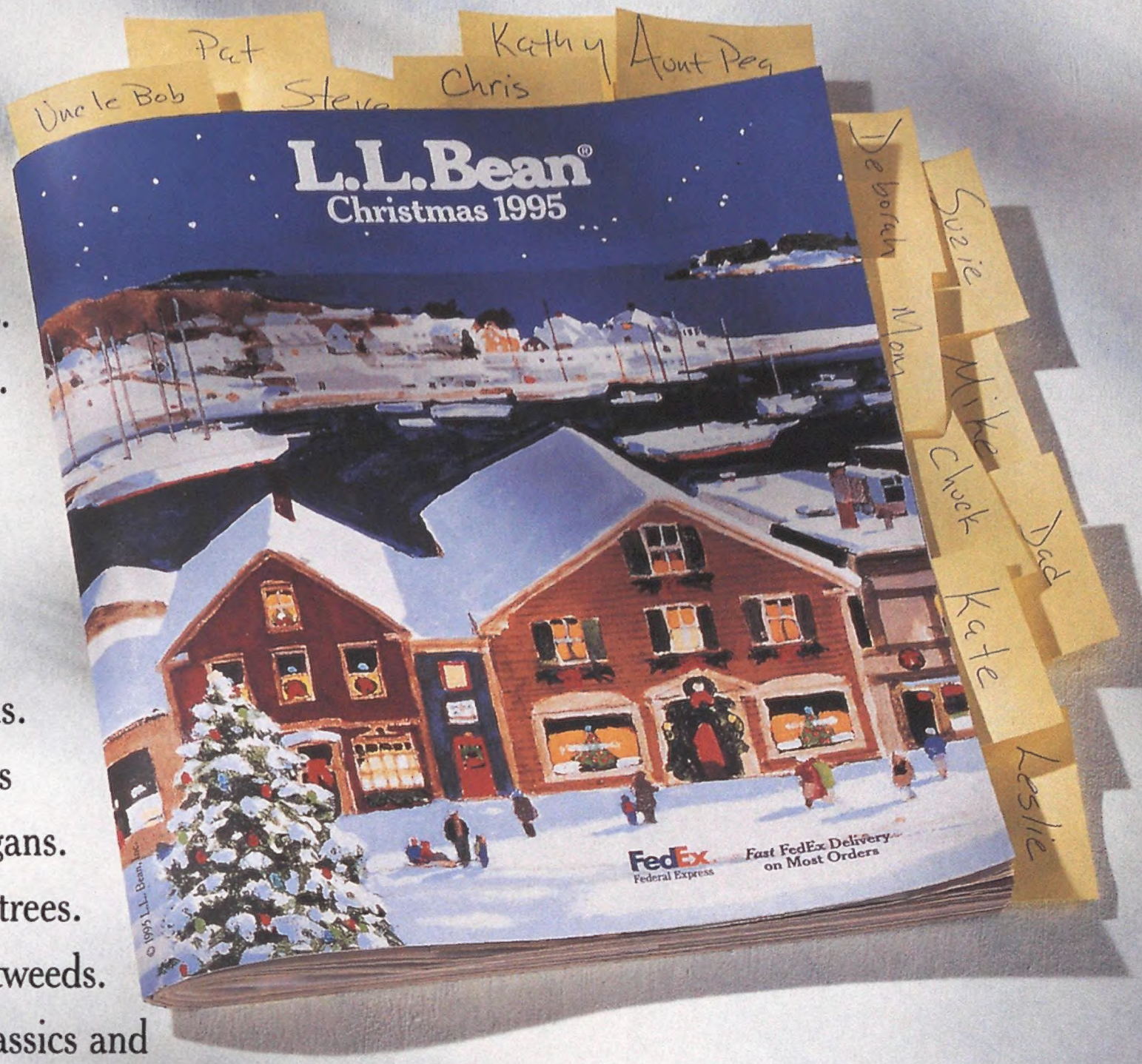

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Smithsonian *departments*

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Cover

Cover:
Vermeer's *Girl with a Pearl Earring* (c. 1665-66) has been called the "Dutch Mona Lisa." The 17½-by-15⅝-inch oil on canvas was sold in 1881 by an auction house in The Hague for two guilders, plus a 30-cent fee (p. 110)
Royal Cabinet of Paintings Mauritshuis, The Hague

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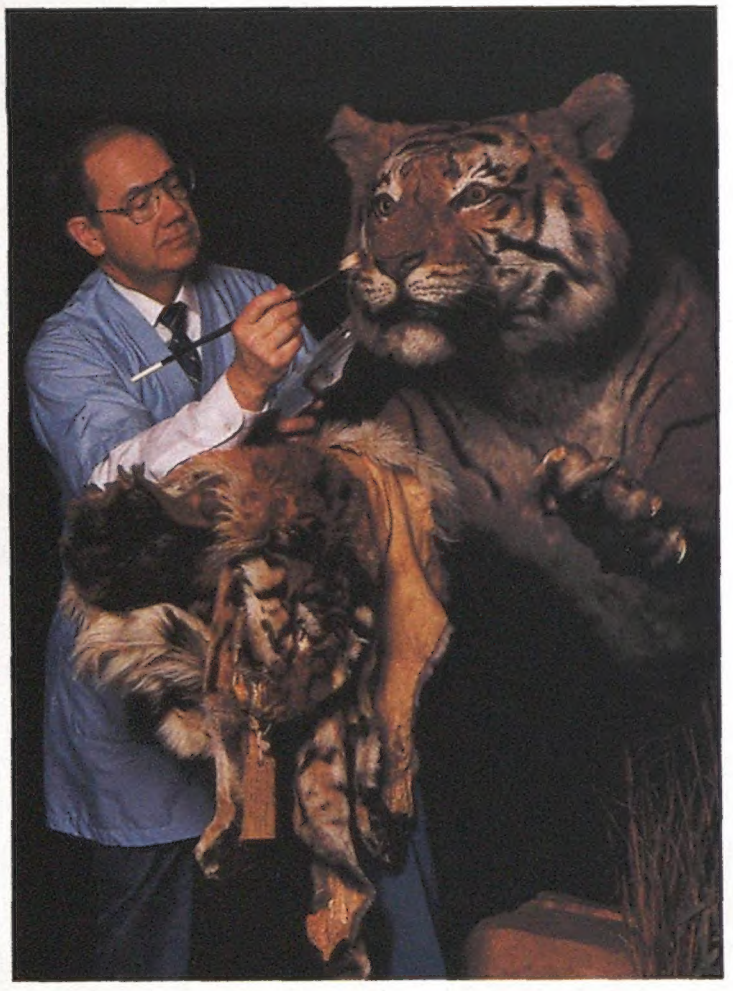

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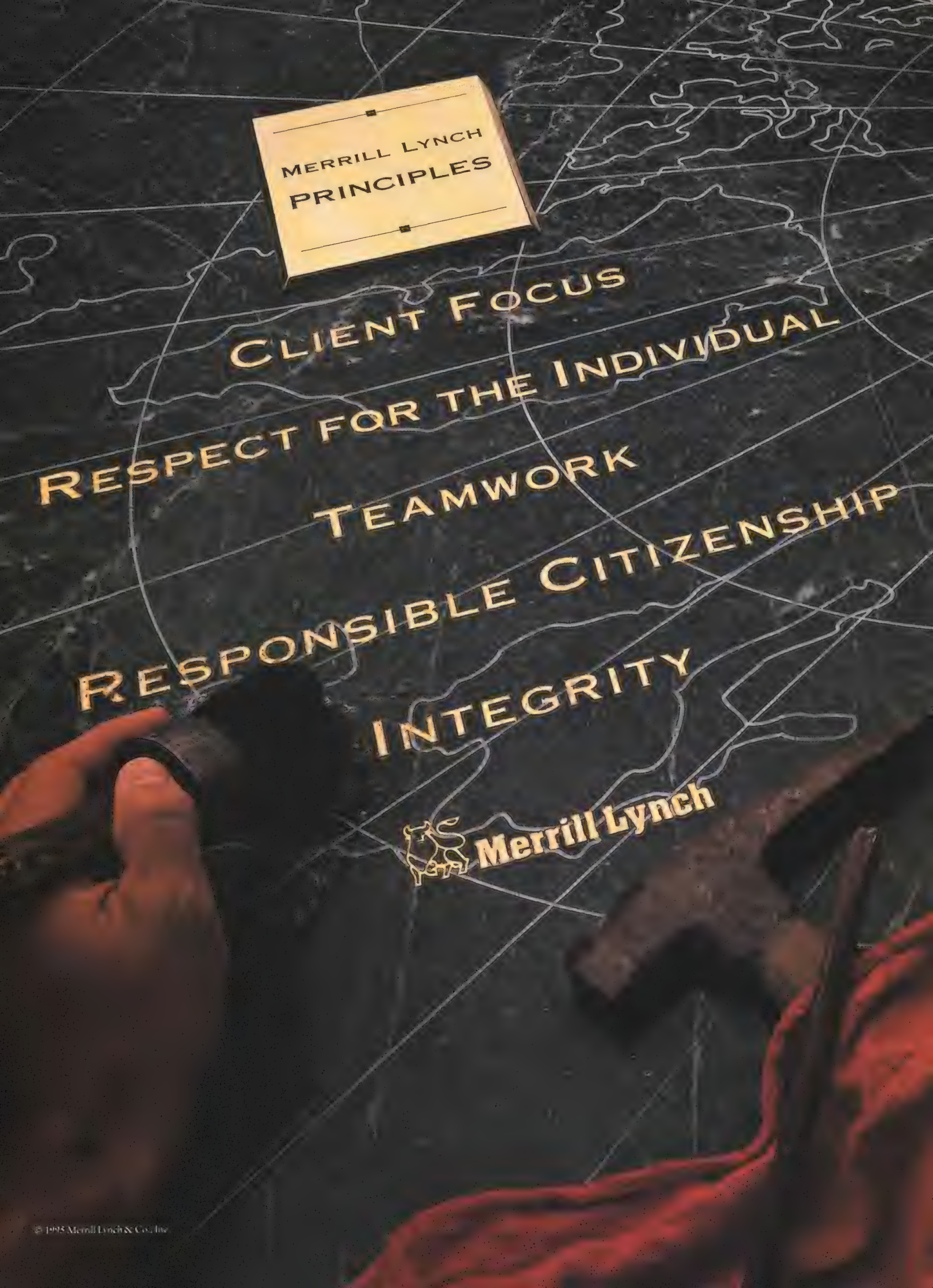

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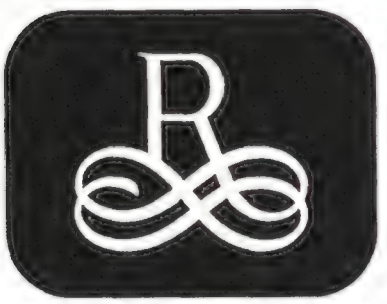

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Secretary Heyman's comments

Smithsonian Perspectives

As the Institution grows in size and complexity, we are proceeding to decentralize and revitalize its parts

The Regents recently adopted guidelines enlarging the role of commissions and boards associated with many of the Smithsonian Institution's museums and directed the other museums and research institutes to establish such boards. I write about this seemingly dry subject because the action is an important part of restructuring the governance of the Institution.

While the Smithsonian was created by Congress and receives a good portion of its support from federal appropriations, it is not an executive agency. Rather the legal responsibility for its governance is in a Board of Regents and the Secretary the Board appoints, who serves at the pleasure of the Board. The structure resembles that of a state university. Congress is very influential largely through the money it appropriates. On the other hand, the Institution historically has enjoyed considerable autonomy from detailed directions of Congress or the executive branch.

When the Institution was smaller, its various parts could be directed in some detail by the Secretary and his staff. In 1958-59, for instance (when I was last in Washington), the Smithsonian consisted mainly of the Arts and Industries Building, the Castle, the Freer, the Natural History Museum, and the National Zoo. There were other units, such as the Smithsonian Tropical Research Institute in Panama, the Smithsonian Astrophysical Observatory and the National Collection of Fine Arts (which later became the National Museum of American Art), but they were much smaller than at present.

In the ensuing years, the Smithsonian grew mightily, adding the National Museum of American History, the National Design Museum (the Cooper-Hewitt), the National Air and Space Museum, the National Museum of African Art, as well as the National Portrait Gallery, the Hirshhorn Museum and Sculpture Garden, the Sackler Gallery, the Smithsonian Environmental Research Center, the Conservation & Research Center of the Zoo, the National Postal Museum, the Renwick Gallery of Art, the Anacostia Museum and the newly created National Museum of the American Indian. Moreover, the major research institutes in tropical biology and astrophysics and astronomy grew substantially.

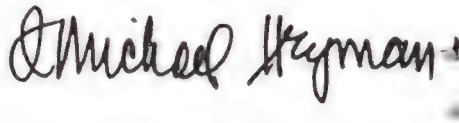
Extraordinary expansion leads to the need to change structures of governance. On paper, the Smithsonian's structure looks much as it did in times past. In reality, however, much has changed. The Secretary no longer manages detail. I find myself representing the Institution to the external world (including Congress), working with the Regents and the Smithsonian National Board, reviewing, and sometimes formulating, general policies to guide the museums and institutes (for instance, the newly distributed "exhibition guidelines"), continually learning about what we do and actually have done, participating in budget allocations to the units seeking to assure high quality throughout the Institution, and, most important, choosing the directors of the museums and institutes. My two principal associates—the Under Secretary and the Provost—are more hands-on, but we all are trying to assure greater operational discretion, consistent with policy guidelines, in the directors of the museums and the institutes.

Evolution toward decentralization is not easy. A single Board of Regents is ultimately responsible for the Institution, and wants assurance that the Institution's parts are functioning effectively and properly. The outside world looks at the Institution as a single entity and views the Secretary as the responsible officer. Sometimes this requires Secretarial action—as with the *Enola Gay* exhibit—that is extraordinary and is viewed by some as improper intervention. Moreover, a number of operations continue to be run by the central administration, from business activities to educational programs for elementary and secondary schools, which overlap with similar activities within museums and institutes. Finally, the fiduciary obligations of the Regents and the Secretary require oversight to assure that money is being spent legally, and that federal rules are being followed (for example, in procurement and personnel practices). We are striving for systems that audit actions of museums and institutes rather than manage the processes themselves, but the transitions are difficult.

The benefits of judicious decentralization are numerous. Among others, vitality is stimulated, innovation finds fewer obstacles, planning is more realistic, decisions can be made and implemented more rapidly, and the ability to make trade-offs in the use of funds can be enhanced. These are all very important in a heterogeneous institution like the Smithsonian.

The enlargement of the roles for museum and institute boards is part of the process. As the museums and institutes become more autonomous, boards will provide directors with advice on many subjects. In the case of museums, especially, they will provide the advice of experts in a variety of areas, such as management and strategic planning, and will be a useful vehicle in bringing public perspectives directly to the attention of directors and staff. Boards will normally champion their museums in requests for support and can be counted on to help raise the private support that is crucial to the sustenance of excellence at the Smithsonian.

Reorganizations in complex institutions take time to work themselves out and bear fruit. The process is well started at the Smithsonian, and present leadership will continue to work hard toward its accomplishment.



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Letters to the Editor

Kee Bird

Dear Sir: The September issue is my first as a new subscriber to SMITHSONIAN, and I was thrilled to see the account of the B-29 *Kee Bird* and Darryl Greenamyer's rescue plans. My brother, T/Sgt. Robert Leader, was the radio operator aboard the downed bomber, and when he said goodbye to the *Kee Bird*, he took the plane's little eight-day clock. For 48 years he faithfully wound the clock, which he kept on his desk inside a Lucite case that he had inscribed simply: "KEE BIRD Feb 21-24, 47."

The clock was on display at last year's reunion, and Bob gave it to someone who promised that he would place it back inside the bomber once it was airborne again.

If only the *Kee Bird*, like the Phoenix, could rise from its ashes and fly again.
Marion Leader
Philadelphia

Dear Sir: The article about the B-29 *Kee Bird* brought tears to my eyes. The story is such a rewarding one—thorough, detailed and so inclusive of the guys who made it all possible. And then, The End. When the *Kee Bird* went up in flames, smoke got in my eyes. Darryl Greenamyer is well known to those of us who enjoy aviation (my partner subscribes to SMITHSONIAN while I subscribe to your companion, *Air & Space*), especially for his work in the rehabilitation and racing of the World War II warbirds.
Peter B. Hoagland
Chicago

Dear Sir: The rescue of the *Kee Bird* may not have worked out the way Darryl Greenamyer and his valiant men had hoped, but their efforts revealed courage, resourcefulness and undaunted determination despite one impossible setback after another.
Charles H. Pettingell
Sacramento, California

Dear Sir: Those who try and fail are winners compared with those who never try at all.
Jim Barrett
Overland Park, Kansas

Dear Sir: Please do not get Mr. Greenamyer interested in archaeology.
James C. Starbird
Van Buren, Arkansas

Dinotopia

Dear Sir: James Gurney's imagination, artistic ability and stories are fantastic beyond words. I hope his creative mind and fantasies bring many more tales in the future. Right now I put Gurney's work in the class of immortals whose members include *Lost Horizons* and *E.T.*
Joseph S. Hargreaves
Roswell, New Mexico

Alcatraz

Dear Sir: Jay Stuller mentioned my friend Rufe Persful, from my hometown of Pocahontas, Arkansas. Contrary to the report of self-mutilation, Rufe told me he laid his hand on a concrete slab and had his cellmate chop off three fingers, leaving the index finger and thumb so Rufe could still shoot.

Rufe told a lot of stories on himself; some were chilling, but many others were humorous. He said he once borrowed $500 from the Bank of Black Rock, Arkansas, and then went back two weeks later and robbed the same bank. Two weeks after that, Rufe returned to the bank and paid off the loan with some of the funds from the robbery.

Rufe died on May 16, 1991, and I was executor of his estate.
Joe R. Martin
Pocahontas, Arkansas

Chimney sweeps

Dear Sir: Neal Singer's anecdote about the chimney sweep's encounter with raccoons reminded me of my own experience with the species. A raccoon moved her family into my chimney, and none of my tactics dislodged her. I finally got out a radio-tape player, set it on an inverted dishpan for more amplification, turned the volume up as high as it would go and put in a cassette of Richard Wagner's "Ride of the Valkyries." After an hour of nothing happening, I ejected the tape and tuned in the radio to the heaviest-metal rock station I could find. Immediately I heard scuffling and squealing. Apparently Mama was a cultured raccoon.
Sharon Coady
Troy, Ohio

Dear Sir: In 1775 the English surgeon Percivall Pott noted the high incidence of epithelioma of the scrotum among juvenile chimney sweeps, ascribing it to their daily exposure to soot. Soon after, chimney sweeps began following advice to bathe daily and to wear protective clothing, resulting in a decrease in the incidence of the disease.

More than a century and a half later, the science of organic chemistry had advanced enough for research scientists to isolate the carcinogenic compound benzo(a)pyrene from coal tar.
R. E. Juday, Professor Emeritus
Department of Chemistry
University of Montana
Missoula

Dear Sir: I recommend the 1933 Laurel and Hardy film *Dirty Work* to anyone seeking a visual demonstration of a chimney sweep's activities. Of course, given its principal characters, the movie is more a study in the art of how *not* to sweep a chimney. Still, all the tools of the trade are employed, including the cloth meant to keep soot from dirtying the room. By the end of the film, soot is liberally distributed over Stan's and Ollie's faces and clothing, the butler's face and clothing, the carpet, the walls and, indeed, most of the contents of their customer's living room.
David W. Lange
Morris Plains, New Jersey

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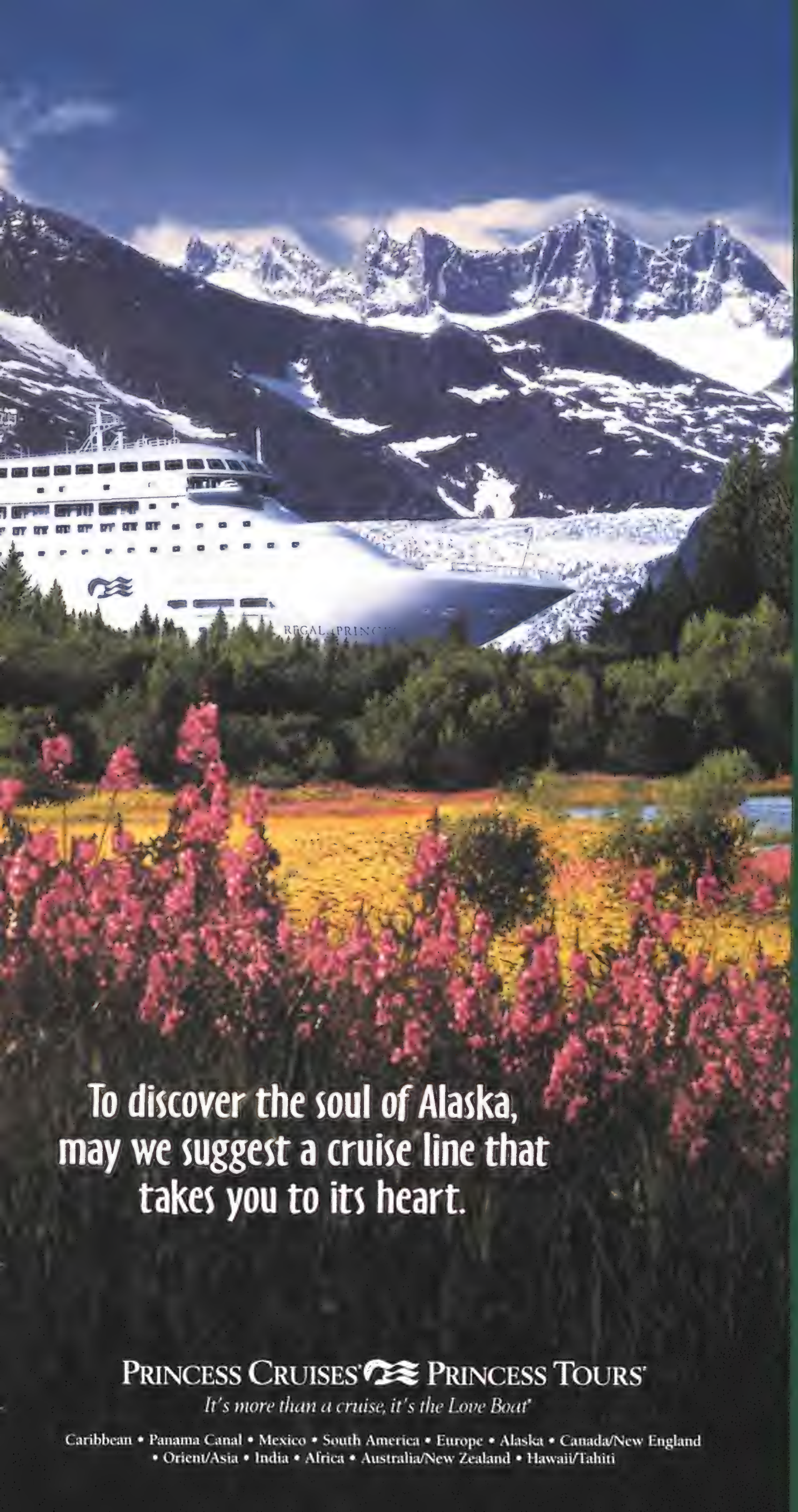

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An Editor's Note

By Don Moser

Ever-present cigar in hand, Ed Thompson posed before the Smithsonian Castle.

A new book from SMITHSONIAN*'s founding editor recounts tales of writers and wars, photographers and Presidents, and the experiences of an extraordinary life in journalism*

This month the University of Missouri Press is publishing *A Love Affair with Life & Smithsonian* by Edward K. Thompson, the founding editor of this magazine. The match is fitting, since the university is the home of a distinguished journalism school, and the author is a legendary figure in the history of American magazines.

What follows is hardly an objective review of Thompson's professional autobiography, since I worked under him briefly at the old weekly *Life*—like most young reporters, regarding him with a combination of admiration and sheer terror. Later he would hire me at SMITHSONIAN. Bias aside, it seems appropriate to offer some comment here for readers who are interested in how this magazine was born, for young people who aspire to careers in journalism and, indeed, for anyone who would like to view some key events of the past seven decades through a perceptive and uniquely positioned lens.

Born in 1907 in St. Thomas, North Dakota (pop. 500), Thompson grew up listening to the howls of wolves outside of town and sometimes walking to school in weather that could hit 52 below zero. At the age of 13, after a trip through Yellowstone Park, he sold his first piece of professional work, a picture of a bear eating garbage, to *Boy's Life* for the handsome sum of $1—and never looked back. After editing the student newspaper at the University of North Dakota, where he locked horns with the local Klavern of the Ku Klux Klan, he held a succession of newspaper jobs at a time when practitioners of that trade were more raffish, more freewheeling and maybe more fun, than in the years since.

At the weekly *Foster County Independent* he honed his skills by editing articles on such events as a "birthday lunch for someone's mother, a lawn party for the American Legionnaire children, a regular meeting of a women's lodge and an auction." Somehow he remained in management's good graces even after having a dustup with the county judge (when Thompson printed what the judge actually said about the state's legal red tape, the judge exploded: "You put dat in da paper?") and wrecking the boss' car by running into a cow.

At the daily *Fargo Forum,* Thompson's news sources were hotel clerks, cops, waitresses, night nurses and undertakers. There he learned to equivocate when the top editor would call in from a late, wet party to propose a story that he'd be appalled to see in print the morning after.

At age 21, Thompson moved on to the big time—the Pulitzer Prize-winning *Milwaukee Journal.* There his colleagues were news editor "Scoop" Arnold, "Stuffy" Walters (whose copy desk was a "dangerous place") and "Cap" Manly, a star reporter who sang Gilbert and Sullivan and slugged cops when he got drunk. The fiction editor (newspapers published short stories in those days) and the political cartoonist hated each other so much that they "drew each other's faces on villains and dogs." The photographers had burn scars on their arms from the flash powder they used. When the Depression hit, the pay envelope was apt to be filled with nickels, dimes and quarters collected by the *Journal*'s newsboys. Even so, after sleeping in a nearby flophouse when he had to stay handy to the paper, Thompson was admonished by the news editor: "You work for the *Milwaukee Journal* . . . no matter what you pay, never again claim less than $5 a night."

Thompson recognized that the 35mm camera and candid photography were changing the face of journalism, and soon won a reputation for his picture layouts at the *Journal.* In 1937 he was hired by Henry Luce's new picture magazine, *Life.* With his instinct for the telling photograph and a common touch perhaps nurtured by his North Dakota upbringing (to say nothing of an admittedly large ego and a feeling for how to play corporate politics both competitively and honorably), he prospered there. In 1946, when someone else beat him in a contest to be *Life*'s top editor, he told Luce: "You have the wrong man." He became the right man a few years later, and the *Life* that many of us remember is to a great degree the *Life* that Thompson made—the *Life* of great news photographs, of the lighthearted "Speaking of Pictures," of such series as "The World We Live In" and "The World's Great Religions," of the picture essays like W. Eugene Smith's "Country Doctor."

As managing editor he was notorious for mumbling so incomprehensibly that after layout sessions his editors would caucus to try to figure out what he had said. (It was widely believed that he mumbled on purpose—although I

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would later discover that he did not mind in the least being asked to repeat himself.) And his attempts to play the role of curmudgeon were usually derailed by his basic humanity.

At *Life*, in those days when television was not yet a force, anything was possible. Whether it was the McCarthy hearings or the Hiss trials or the launching of the first Americans into space, *Life*, and Thompson, were there. To cover major events like political conventions, Thompson deployed photographers by the dozen to shoot pictures by the thousands. To beat the competition, he sent reporters waving hundred-dollar bills to buy photographs from the survivors of an airplane crash in the Pacific. What he liked best was tearing up an issue at the last minute and starting again from scratch. A colleague wrote: "Thompson would brighten perceptibly when there was any prospect of a late-breaking story turning a long day's work into a longer night's."

It was customary for *Life* to publish the memoirs of important figures, and it fell to Thompson to do the requisite celebrity hand-holding. He recounts his experiences briskly but with relish. The Duke of Windsor seemed to believe that he had composed his ghost-written memoirs himself, although when he wrote captions for the illustrations in the article, he "performed almost competently." Winston Churchill, who could take justifiable pride in his prose, responded amiably to being edited, although his table manners when eating caviar left something to be desired.

No athlete, Thompson found himself puffing along with Harry Truman on one of his brisk morning walks and was told that if he kept up the regimen he'd live to be 100. (He's working on it—Thompson is 88 today.)

Thompson worked closely with Douglas MacArthur on his memoirs, and writes: "If you have genuine MacArthur prose, you find that purple becomes the color of choice." Yet Thompson seems to have had a real affection for the general, who by then was frail and trembling with palsy. When they parted for the last time, MacArthur walked him to the door and said: "I've looked that old devil, Death, in the eye a hundred times. But this time I think he's got me."

In 1952 *Life* published *The Old Man and the Sea*, thus beginning a not entirely comfortable relationship with Ernest Hemingway. When Alfred Eisenstaedt went to Cuba to photograph him, Hemingway wanted to pose in swimming trunks. "My body," he said. "Women love my body." On a subsequent assignment to write a 4,000-word piece on bullfighting, Hemingway turned in monstrous expense accounts—his custom was to walk into a bar and buy drinks for the house. When he finally delivered his manuscript, it came in at a staggering 108,746 words (Hemingway counted them himself). Trying to turn it into something manageable, *Life*'s editors had to cope with the author as prima donna. Thompson observes: "He was fiercer in defense of doubtful material than when he knew they were dealing with his best."

The most revealing portrait in the book is of Thompson's inscrutable, stubborn, often brilliant boss, Henry Luce. He possessed "an almost painful integrity and pride in his work," Thompson writes. "And when he *did* have bad ideas, one soon learned—by trial and error—which ones he could be talked out of and which could be quietly ignored and left to collapse of their own weight."

Luce lived in a world of his own. In Rome while his wife, Clare Boothe Luce, was Ambassador to Italy, he had his own office in a building where there was a charge for using the elevator. Since Luce never thought to carry change, "Time Inc. furnished the elevator operator with lira and several portraits of Harry from different angles so that the fees would be paid on his behalf." When his flight was delayed on a trip to Europe, an exasperated Luce ordered an assistant to "call Juan Trippe [who then ran Pan Am] and tell him to get his goddamned plane off the ground." Irritated by the fact that his executives had to pay such high taxes, Luce came up with a cockamamy scheme for providing them such perks as household servants or vacations aboard a corporate yacht. "Those in the highest salary brackets would get two full-time servants . . . and so on down to one cleaning woman once or twice a week." The idea collapsed when Luce learned that perks were taxable too.

Truman signed picture for Thompson: "I wonder just what we were laughing at."

Nevertheless, Thompson admired Luce for his seriousness of purpose, his business acumen, and his willingness to gamble on his own ideas and those of his editors. When he was offered the top job at *Life*, Thompson was asked by colleagues how he could abide the thought of working for someone who wasn't a regular guy. He concluded: "He was enough of a regular guy for me."

In 1970, having retired from Time Inc., Thompson became the founding editor and publisher of SMITHSONIAN. He says he "invented" it. In fact, he did. S. Dillon Ripley, then Secretary of the Smithsonian Institution, wanted a popular magazine that would extend the Institution's reach, and he left it to Thompson to carry out the mission. In the book, his stories about the early days of SMITHSONIAN—the shaky finances, the uncertain backing of the Board of Regents, the surprising (although not to him) early success—may be familiar to our regular readers. A monthly magazine, with its stately pace, is less productive of last-minute crises and high drama than a newsweekly. But the fact is that Thompson ran this magazine for the first decade of its life, and although there have been changes—he probably does not approve of all of them—it bears his stamp today.

If there's a message in Ed Thompson's book, it comes not at the end but in the very first sentence. "To those all-out converts to computerized journalism who declaim that 'print is dead,' I say, 'Not so fast.'"

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Phenomena, Comment and Notes

By Marie Winn

When red-tailed hawks hatched chicks on a ledge of a Fifth Avenue building, birdwatchers were ecstatic. But there was a mystery about these hawks, and the band on Mom's ankle held the answer

On a railing of the nest building, Mom gives a rare glimpse of the banded ankle.

One evening last May, on a sudden impulse born of desperation, a Central Park birdwatcher approached a young man standing beside an enormous telescope on the lawn outside the Hayden Planetarium and asked: "Could this telescope read some numbers on a narrow aluminum band attached to the right ankle of a hawk perched about two city blocks away?"

Michael O'Gara, of the Amateur Astronomers Association of New York, thought it was one of the strangest questions he had ever heard. He was there to give some city kids a star show, and he knew he could find Mars and the Beehive Cluster for them. But birdwatching with an astronomical telescope was something new. "It seems worth a try," he answered. And so began a remarkable chapter in the annals of urban birdwatching.

The modern practice of bird banding may have originated with Audubon, who in 1804 attached silver threads to the legs of nesting phoebes to find out if the same birds came back the following year. (They did.) Since then, scientists have been solving some of the most intriguing mysteries of avian wildlife—among them how long birds live, how fast they travel, where they go and by what routes, and whether they keep the same mates year after year—through the recovery of birds with bands.

The details of where and when each bird is banded are sent, with its number, to the Bird Banding Laboratory in Laurel, Maryland, where the information is computerized and made available to scientists and other interested persons. Of the 1.1 million birds banded in North America each year, hardly 5 percent are ever seen again. Most of these are recaptured in some researcher's mist net. Sometimes a banded bird is found dead and the number reported to the Bird Banding Laboratory.

Birdwatchers, on rare occasions, spot a banded bird in their binoculars. But the obstacles to reading eight or nine tiny numbers on a band fastened around the ankle of a living, moving, flying bird are formidable. When the bird is a local celebrity, however, it calls for extraordinary measures.

The bird in question was certainly in the public eye. A female red-tailed hawk, she and her mate had recently produced three downy chicks in a most unusual location: above a 12th-floor window of an elegant apartment house overlooking the park on Fifth Avenue and 74th Street. Central Park's birdwatching community was wild with joy about the blessed event. Champagne bottles popped on the day the first chick hatched as the birdwatchers toasted the successful redtail family.

The nest created a stir in the ornithology world as well, for red-tailed hawks, unlike peregrine falcons or kestrels, are not known to be urban ledge nesters. They like to raise their families in trees. And the nest site attracted attention for another reason: it was five stories above Mary Tyler Moore's apartment and one building over from Woody Allen's penthouse. Indeed, Woody's TV antenna was one of the birds' favorite spots for hawk sex, all five seconds of it.

After the eggs hatched, great crowds gathered every day at Central Park's model-boat pond to observe the father, an unusually light-colored hawk generally called Pale Male, and Mom, a darker and larger bird, performing their parental duties. Even the chance sighting of Woody on his terrace failed to create as much excitement as a rat being delivered to the hungry babies in the nest. But there was a mystery connected to these hawks, and the birdwatchers were determined to solve it. The aluminum band on Mom's right ankle held the answer, if only they could make out its tantalizing number.

In 1992, when Pale Male first showed up in the park, he had enjoyed a fling with an older female hawk. His tail was

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brown then, the sign of an immature redtail, while hers was a beautiful chestnut red. They set up housekeeping in a tall elm, the first redtail nesting in the park's history. But the affair was short-lived. While evading a mob of crows, the female crashed into a rooftop, severely damaging her left wing. Fortunately, a wildlife rehabilitator was quickly located. She wrapped the hawk in a blanket and took her to the Raptor Trust, a center for injured birds in Millington, New Jersey. Leonard Soucy, its founder and director, never turns away an injured bird, and many of his patients are successfully rehabilitated and returned to the wild.

A hawk that has lost a mate usually finds a new one quickly; the imperative to keep the species going is powerful in the wild. Thus, a few weeks after his mate's injury, Pale Male was seen hanging around with a new female redtail. By the spring of 1993, the pair had completed their Fifth Avenue stick palace.

Though that nest made history, it failed to produce young. In 1994 the couple tried again at the Fifth Avenue aerie, and again the eggs did not hatch.

On October 15, 1994, Norma Collin, Annabella Cannarella, Harold Perloff and Mary Birchard, four of the park's most dedicated birdwatchers, spotted an adult red-tailed hawk perched on a low branch in the Ramble. At first they thought it was the female of their resident redtail pair. Then, to their amazement, they noticed a band on the bird's right ankle.

They were even more surprised when the banded newcomer began to be seen in the company of a familiar bird—Pale Male. Meanwhile, Pale Male's second mate had vanished. And as time went on he and the mystery hawk grew chummier. In November they were seen flying in tandem, at times displaying the talon-drop courtship posture. In December they shared a pigeon near Cedar Hill and a rat in the Ramble.

By January it was clear that Pale Male and the hawk with the band had pledged their troth. Soon they were adding sticks to the old Fifth Avenue nest, and by the beginning of April they were taking turns sitting on eggs. This time they hit the jackpot. On April 22 the first baby hawk made its entry into the world. By the 26th there were three visible young.

What had happened to the female who had helped build the nest and then

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sat on the eggs in 1993 and 1994? Perhaps, the birdwatchers theorized, Pale Male took up with a new female because his old mate had not produced an heir. That was the Fertility Scenario. Or maybe the banded bird was his first love, the 1992 female. Could she have mended and returned to claim her mate? That was the Soap Opera script.

When a phone call to Leonard Soucy of the Raptor Trust revealed that the hawk with the damaged wing had been rehabilitated, the Soap Opera story gained supporters. Soucy, a licensed bander, then added a fine detail: on November 7, 1992, before releasing the female hawk over the Great Swamp National Wildlife Refuge, he had fastened an aluminum band with the number 1387-38569 around her right ankle.

Were Mom (the mystery bird with the band) and First Love (now at large and also wearing a band) the same bird? There was one way to find out: check the numbers on the mystery hawk's band. But the birds on Fifth Avenue were too far away, and the band too small for the strongest binoculars and spotting scopes to read. Enter Michael O'Gara and his six-inch Newtonian reflector, a powerful telescope he had made himself. It can reveal distant star clusters and galaxies. Perhaps it could read the numbers on a bird band.

On May 26, 1995, at 2:15 P.M., O'Gara carried his telescope down to the model-boat pond and pointed it at the nest. Mom had just arrived with some prey. But she was facing south—only her left foot was visible. A little after 3 P.M. she turned. O'Gara concentrated fiercely. "I think I see the crimp and then 1 and 3," he announced to the small crowd assembled for the occasion. The crimp is the ridge where the band is fastened. It would mark the beginning and end of the number. A moment later he said, "I definitely see a 7 hyphen 3." All these numbers were on the 1992 bird's band. The odds were getting better that Mom and First Love were one and the same bird. Everybody loved that story—it satisfied a subterranean romantic streak in a group of hardened New Yorkers.

Location! Location! Pale Male tends the luxurious Fifth Avenue nest-with-a-view.

On June 3 O'Gara trained his telescope on the nest again, and once again, as the hawk fed her babies, she faced the wrong direction. Finally she landed on Woody's TV antenna with her right leg in perfect sight, but by the time O'Gara turned his telescope to the new location, she had gone.

A new angle was needed, and Jane Koryn provided it. She lived on the 12th floor of Woody's building and had often seen the hawks perched on her living-room window ledge. She could see the corner of the nest if she leaned way out of the window. During the 1995 redtail nesting season she had become a devoted member of the model-boat pond hawkwatchers, a companionable group that included homeless park dwellers, Fifth Avenue apartment owners and every gradation of the social spectrum in between.

On June 15 Michael O'Gara and two Central Park birdwatchers, myself included, arrived at Koryn's Fifth Avenue apartment house, just across 74th Street from the hawk building. For the occasion, O'Gara had switched to an eight-inch Newtonian reflector, which he wheeled in a luggage cart. I carried the usual hawkwatching gear—field guide, water bottle, sun block—in a backpack. Charles Kennedy, a tall man in his mid-50s with shoulder-length hair, a beard and a Fu Manchu mustache, balanced a camera with a telephoto lens in one hand and a tripod on his shoulder.

The liveried doorman looked dubious as he called Koryn on the intercom. And though she confirmed that we were invited guests, he hastily ushered us into the service elevator. Obviously, employees of Fifth Avenue apartment

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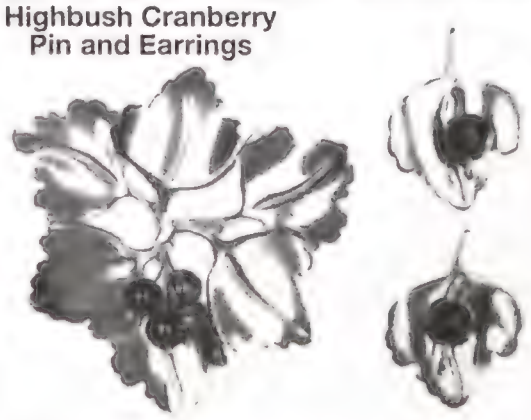

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houses have little experience with birdwatchers or astronomers.

No one spent much time admiring Koryn's elegant apartment. The focus was on hawks, and a mere 15 minutes after O'Gara finished setting up his telescope, the female hawk landed on a ledge directly in view, so close that the band was visible to the unaided eye.

O'Gara inserted an eyepiece—with this telescope it could magnify the image 237 times—and worked at the focus. "I'm getting it . . . I see the band," he said excitedly. Then, as if impelled by some malign force, the bird lifted her right leg, tucked it into the mottled feathers around her belly and began to preen. Hawks, like most birds, devote more than 50 percent of their waking days to feather maintenance. This bird, now with her right foot tucked out of sight, proceeded to spend one and a half hours working over every damned feather on her body.

To ease the hawkwatchers' frustration, Koryn brought out a bottle of Pinot Grigio, crystal glasses, and bowls of apricots and fancy almonds, which lifted everyone's spirits considerably.

O'Gara tried squeaking like a mouse. The hawk looked over, but the leg remained raised. O'Gara sang a few lines of a Schubert lied—now a video producer, he had once trained as a baritone—and the bird did not bat an eye. "Hey, you on da ledge! Down! Both feet down!" he called out in a Dead-End Kid voice. No response.

At 6:35, as the light began to fade, Mom straightened up and showed us her band. O'Gara had the telescope perfectly focused this time, and he called out: "Yes! It's 1387 hyphen 3!"

It was virtually certain: this was First Love. There were now five identical digits to the 1992 band. But O'Gara continued to peer into his telescope. And now he added: "I see a 2, a definite 2."

"Are you sure?" Charles Kennedy asked, hoping the answer would be no. For there was no 2 in the 1992 bird's band number.

"I'm 100 percent sure," O'Gara answered. "Wait, she's moving her foot, I can see more numbers . . . yes, I see it clearly. It's 8627 and then the crimp."

"The end of romance," said Kennedy. He had been one of the strongest adherents of the Soap Opera scenario.

It was hard to believe. When we put together the numbers O'Gara had seen from the model-boat pond with the

numbers seen from Koryn's window, we ended up with a complete number—1387-38627—differing from the band number of the 1992 hawk, First Love, by only three digits.

On Monday I called the Bird Banding Laboratory in Maryland. Mary Gustafson, a biologist, took my call and, after a brief computer search, gave me some most unexpected information.

"Bird 1387-38627," she said, "is an adult redtail at least two full calendar years old, rehabilitated by Len Soucy at his center in New Jersey and released there on October 8, 1994."

"That's incredible," I told her. "The bird we thought this was going to be was also a Len Soucy bird, one that he banded in 1992. Is there any chance that he made a mistake recording the number, and this one actually *is* the other bird?"

"Oh no," she answered, sounding horrified. "Banders are required to keep exact records and when they band a bird, first they read the number on the band, then they put it on the bird and then they read it again, to make sure all the numbers are right. Then they have to send the records to us."

"But doesn't it seem a bizarre coincidence, to have two Central Park redtails banded by the same bander? And isn't it amazing that the two numbers begin with the same six digits?"

Gustafson had convincing answers for both questions: "We only have 2,000 banders across the country. They're very scarce, particularly banders of hawks. It takes a special skill to band and release a hawk safely. Len's an active bander and probably bands a large percentage of the nonmigrant redtails in the state. So it doesn't surprise me that both birds would connect to him.

"As for the identical digits: a band is composed of three or four numbers before a hyphen, and then five numbers," she explained. "The last number of the prefix indicates the size of the band. The number you just gave me—1387-38627—has a 7 in front of the hyphen. That's a big size, used for red-tailed hawks, for instance, or snow geese, or mallards. The 1387 prefix indicates that it's a lock-on band. Most bands are what we call butt-end types, but a hawk could grab such a band and pull it off. Len Soucy received a big batch of bands with sequential numbers, from 1387-38501 to 1387-39000. So the bands of any two hawks rehabilitated by him in recent years would start with the same six digits."

Now it all made sense. It reminded me of some magic tricks I've seen: as the trick is performed, it seems impossible to explain by any earthly means. Then, when it *is* explained, it all seems so obvious, and my certainty that I have witnessed something supernatural seems so foolish.

I called Len Soucy the same day to find out more about the mother hawk. "It's awesome that you succeeded in reading the numbers," he said when he had heard my tale. "That happens once in a million with a live bird. And wait until I tell you the story of this bird!

"On September 6, 1994, we got a call from the Bergen County Animal Shelter," he began. "Someone had brought in a red-tailed hawk that was found injured on the Palisades Interstate Parkway, near Alpine, New Jersey. So we went over and picked the bird up. She had suffered severe trauma to her right eye. I guessed the bird was a female because of her size. Female hawks are larger than males.

"She was extremely debilitated and in shock when we brought her in. We had to force-feed her for a week to keep her alive. We treated the eye injury over a five-week period, but there was no pupillary contraction or dilation in that eye, no response to light. And after our vet looked at it with an ophthalmoscope, his best judgment was that the eye was nonfunctional. So that's the story of your hawk: the bird is almost certainly blind in the right eye."

I had to interrupt him. Something had just clicked. "That explains why she was almost always facing south whenever we saw her on a building or the nest. She was looking out with her left eye."

"Sounds right," he agreed. "We agonize over these one-eyed birds. A lot of other rehabilitators believe that one-eyed hawks have almost no chance to survive in the wild. Hawks are terribly dependent on eyesight for their living. And with one eye they have no depth perception. How can they avoid obstacles? They are literally blind-sided. That's the awesome part of this story: a hawk with totally compromised vision is not only making it but is reproducing! Three kids! Wait until science hears how she is doing!"

This column is adapted from Marie Winn's book about the Fifth Avenue hawks and other urban wildlife (Pantheon, 1996).

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The Object at Hand

By Adele Conover

The story behind the Smithsonian's display tiger leads back into tiger history, man-eating and otherwise, and sadly, back to the fact that tigers are now endangered

Taxidermist Frank Greenwell touches up the face and whiskers of NMNH's Bengal tiger, using skins from the collection to match colors.

Its "fearful symmetry" arrested in mid-air, a Royal Bengal tiger, 11 feet 1 inch long, hurtles at unseen prey in the World of Mammals Hall in the National Museum of Natural History. As it happens, this object at hand was almost certainly a man-eater until put out of business in 1967 by big-game hunter David Hasinger, a Philadelphia industrialist.

As famed hunter Jim Corbett once claimed, it is "alien" to tiger nature to eat humans. According to Corbett (p. 32), a tiger will do so only if it feels "compelled, through stress of circumstances beyond its control, to adopt [such] a diet." Whether or not the Smithsonian's tiger conformed to the outlaw profile as a wounded, snaggle-toothed, landless, aged cat that in better days would have been a "large-hearted gentleman," as Corbett maintained most tigers are, is unknown. But one thing is certain: this 857-pound tiger was not hungry when Hasinger dispatched him. Earlier that day the Bengal had dragged off a buffalo calf and the 80-pound rock to which it was tethered, leaving footprints "as large as dinner plates."

Hailing as he did from the foothills of the Indian Himalayas, the Smithsonian's tiger nevertheless could have been the great-great-grandson of the Champawat man-eater, a tigress encountered by Corbett in the early 1900s that had just made her 436th known kill—a 16-year-old girl out gathering wood. Corbett trailed the tigress through thickets of blackthorn that held "long strands of the girl's raven-black hair." Near a small pool, he came across what proved to be part of a human leg. "In all the subsequent years I have hunted man-eaters," Corbett wrote, "I have not seen anything as pitiful as that young comely leg—bitten off a little below the knee as clean as though severed by the stroke of an ax." While looking at the leg, Corbett forgot about tracking the tigress until, as he said, "I suddenly felt I was in great danger . . . and saw a little earth from the fifteen-foot bank in front of me, come rolling down the steep side and plop into the pool. . . ."

After Corbett shot the bandit tigress, he found that the upper and lower canine teeth on the right side of her mouth were broken—the upper one in half, the lower one right down to the bone. This permanent injury, Corbett claimed, "had prevented her from killing her natural prey, and had been the cause of her becoming a man-eater."

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After David Hasinger presented *his* man-eating tiger to the Smithsonian in 1969, it was displayed at the Constitution Avenue entrance of the Museum of Natural History with an axis deer fleeing before it. In 1976 new exhibits were moved into the entrance hallway, and it was decided that if the deer "got away," the solo tiger could fit into a smaller space by the museum gift shop. Besides, at the time there was also growing concern that showing a tiger chasing a deer might be a bad idea. As one museum functionary put it, "Children would [see it], and from that moment hate the thought of a tiger because it kills nice little deer."

By then tigers were already in considerable trouble, and things have become steadily worse. (The worldwide tiger population at the turn of the century was an estimated 100,000; today the number hovers at about 5,000.) Tigers once ranged from Siberia and the Caspian Sea south through India, China and Southeast Asia to the Sunda islands of Java, Bali and Sumatra. Of the eight subspecies, three are now extinct. By the early 1970s in India alone, the tiger population—40,000 at the turn of the century—was down to less than 2,000. That statistic spurred Operation Tiger, a public-awareness campaign, in 1973.

Gone are the tiger-filled days when Corbett, as a small boy wandering the jungles of Nepal in the 1880s, peeped over a plum bush that heaved as a tiger walked out on the far side. The cat, Corbett recalled, looked at him with "an expression on its face which said 'Hello kid, what the hell are you doing here?'" Then it turned around and walked away without looking back.

Experts have little trouble rounding up the usual suspects—overhunting, deforestation, conversion to cultivation, expansion of human population, loss of prey, poaching for pelts, and the Asian medicine trade. The skin trade has fallen off a bit lately, but the hunger for tiger parts—including whiskers for use in love potions—remains relentless.

No tiger, not even the Smithsonian's, is safe. Taxidermist Frank Greenwell, who is charged with the Bengal's upkeep, reports that he is continually replacing the big cat's "whiskers," which keep being filched by wayward tourists. "Unfortunately," he says, "the original whiskers were replaced with fiberglass broomstraws—an unlikely aphrodisiac."

Tigers and humans have always crossed paths, but most zoologists agree that the big cats, for the most part, are not inherently man-eaters. "Walking in a normal upright posture," says zoologist John Seidensticker, "a person does not represent the 'right' form for prey." It's more likely that tigers regard humans as competitors. Says Seidensticker: "Since far back in history, Man has lived with tigers, sometimes competing with them directly for food. Men killed tigers, tigers killed men."

It is not that humans and tigers cannot coexist. On the Indian subcontinent a century or so ago, tigers prospered on huge belts of wilderness interspersed with human settlements. The villagers' own habitat—cleared land for grazing their animals, thick forests for gathering firewood—enhanced the habitat for tiger prey such as deer and wild pigs. It wasn't until demographic pressures began to strain the equation in the waning decades of the past century that the eating of humans increased.

It has been estimated that tigers have killed a million Asians in the past 400 years, an average of 2,500 per year. Considering how available and vulnerable people are, Seidensticker adds, "it is puzzling why tigers didn't kill more than they did."

Historically, whenever man-eaters became a problem, native people found ways to get along with the tigers, using a mix of discretion, decorum, ceremony and mother wit. In the hill tribes of Vietnam, if a man-eater snatched only women, as sometimes happened, the offending tiger was seen as the soul of a deceived husband, a considerable encouragement to marital fidelity. Even to this day some tribes never mention a tiger by name for fear of attracting its attention.

It is only in the Sunderbans, the great mangrove swamp that straddles the India-Bangladesh border, that tigers seem to regularly stalk humans—usually woodcutters, fishermen and honey gatherers who have crept into this sparsely populated 4,000 square miles of wild preserve for a little poaching. Rough estimates suggest that around 300 people are killed each year. But as one Indian tiger expert calculated, if people were the major food item for Sunderbans tigers, some 24,000 would be killed annually.

It's not too surprising that when Indian maharajahs and British sportsmen in search of trophies went to war with

Adele Conover, who wrote in this column on NMNH's reticulated python last June, reports frequently on matters zoological.

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Hunter and author Jim Corbett (*The Man-Eaters of Kumaon*) believed that tigers attack people only when they are too old or infirm to survive on game.

the tiger during the past century, they were able to "bag" the enormous numbers they did. They rode elephants and had swarms of beaters to drive the tigers into the open. The Maharajah of Surguja set an all-time record of 1,100 kills, just edging out the Maharajah of Udaipur's 1,000 for the same period. Both the Maharajah of Rewa and the Maharajah of Gauripur notched in at 500 each. The only British sportsman to come close, George Yule, a British civil servant, stopped counting at 400. Other English scores seem almost measly in comparison: the next highest belonged to a Colonel Nightingale, who did in about 300. With a little help from the following account of "an enthusiastic though rather inexperienced sportsman" in the *Calcutta Englishman* of April 24, 1874, the British showing may be put in perspective:

"He was seated in his howdah on the elephant when the mahout suddenly cried, 'Shér, Sahib,—burra Shér!' for a tiger had made his appearance unexpectedly close to the elephant. The gentleman hurriedly fired, and planted a ball from his rifle not in the tiger's shoulder but in his abdomen. This mistake must have been due to the surprise at the tiger's sudden advent on the scene . . . otherwise such a want of knowledge of anatomy as was evinced in seeking a vital spot in the abdomen would be unpardonable. The consequences of the mistake were serious; for the tiger, resenting the sudden disturbance in the region where remains of his last kill were peacefully reposing, charged the elephant, and by a spring succeeded in planting his fore paws on her head, while his hind legs clawed and scratched vigorously for a footing on her trunk. Imagine the feelings of the mahout, with a tiger within six inches of his nose! the elephant trumpeting, shaking, and rolling with rage and pain, till he was barely able to maintain his seat on her neck at all, and the occupant of the howdah, too, tumbled from top to bottom, and from side to side of it as if he were a solitary pill in a pillbox too large for him." The mahout, wrapping his seat cushion around his arm, picked up an iron elephant prod and began beating the tiger manfully about the ears.

The mahout kept beating and the tiger kept coming until the elephant charged straight at a sal tree, thinking to make an instant tiger pancake. The tree gave way, sending tiger and elephant into a deep pit. By sheer luck both the mahout and the hunter fell to earth outside the pit. When the elephant trampled the tiger senseless the drama was over.

Though tiger-shooting nearly everywhere now is confined to photography, the prospects of sighting a "Tyger! burning bright" or otherwise are dropping rapidly. Zoologists forecast that by the end of the century there will be more tigers in captivity (there are now 1,157 in zoos) than in the wild. The only hope, a faint one, lies in protecting habitat. Happily, this fall the Exxon Corporation and the National Fish and Wildlife Foundation launched a multimillion-dollar Save the Tiger Fund.

But even if there are no wild tigers to see, as John Seidensticker reported in his memoir, *Bearing Witness*—which detailed the extinction of tigers in Bali and Java—people still have "many stories to tell of encountering a tiger drinking near a temple or of a tiger that regularly rested along a mountain stream at Pondok Macan (Tiger Place). . . . Animals as metaphysically important as tigers live on in our minds after they are gone."

Meanwhile, at the Museum of Natural History there are plans to reunite the Royal Bengal with the famous little axis deer once more. The new display—a reality check—will note how the tiger has leapt into the air too far away from the deer to actually "bag" it. It is estimated that tigers are successful only one in 20 times. For the moment, though, museum visitors continue to take their cue from Charles Darwin, who wrote, "I always felt a strange interest in the tiger."

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If you have not had a hysterectomy, estrogen alone can increase the risk of cancer of the uterus. The addition of progestin, however, may reduce this risk. That is why many doctors and health care providers now prescribe progestin in conjunction with estrogen for their patients. Progestins may have unfavorable effects on blood sugars which might make a diabetic condition worse. The most common side effects are breast tenderness, headache, and abdominal pain.

When you discuss hormone replacement therapy with your doctor or health care provider, it's important to inform him or her about all issues relating to your personal and family health history of breast cancer, breast lumps, abnormal vaginal bleeding, abnormal blood clotting, severe headache, dizziness, or liver disease. Women who are pregnant should not take hormone replacement therapy.

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ESTROGENS/PROGESTINS SHOULD NOT BE USED DURING PREGNANCY.
Estrogens do not prevent miscarriage (spontaneous abortion) and are not needed in the days following childbirth. If you take estrogens during pregnancy your unborn child has a greater than usual chance of having birth defects. These birth defects may affect the baby's urinary system and sex organs.

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Estrogens have several important uses but also some risks. You must decide, with your doctor, whether the risks of estrogens are acceptable when weighed against their benefits. Check with your doctor to make sure you are using the lowest possible effective dose.

With PREMPRO therapy several menstrual-like bleeding patterns may occur. These may range from absence of bleeding to irregular bleeding. If bleeding occurs, it is frequently light spotting or moderate menstrual-like bleeding, but it may be heavy. Please discuss your bleeding pattern and appropriate follow-up with your physician.

USES OF ESTROGEN

To reduce menopausal symptoms. Estrogens are hormones produced by the ovaries of normal women. The decrease in the amount of estrogen that occurs in all women, usually between the ages of 45 and 55, causes the menopause. Sometimes the ovaries are removed during an operation causing "surgical menopause." When the amount of estrogen begins to decrease, some women develop very uncomfortable symptoms, such as feelings of warmth in the face, neck, and chest, or sudden intense episodes of heat and sweating ("hot flashes" or "hot flushes"). Using estrogen drugs can help the body adjust to lower estrogen levels and reduce these symptoms. Some women have none or only mild menopausal symptoms; in others, symptoms can be severe. These symptoms may last only a few months or longer. Taking PREMPRO can alleviate these symptoms. If you are not taking hormones for other reasons, such as the prevention of osteoporosis, you should take PREMPRO only as long as you need it for relief from your menopausal symptoms.

To prevent brittle bones. After age 40, and especially after menopause, some women develop osteoporosis. This is a thinning of the bones that makes them weaker and more likely to break, often leading to fractures of spine, hip, and wrist bones. Taking estrogens after the menopause slows down bone loss and may prevent bones from breaking. Eating foods that are high in calcium (such as dairy products) or taking calcium supplements (1000 to 1500 milligrams per day) and certain types of exercise may also help prevent osteoporosis. Since estrogen use is associated with some risks, its use in the prevention of osteoporosis should be limited to women who appear susceptible to this condition. The following characteristics are often present in women who are likely to develop osteoporosis: white race, thinness, cigarette smoking, family history and early menopause.

To treat vulvar and vaginal atrophy (itching, burning, dryness in or around the vagina, difficulty or burning on urination) associated with menopause.

WHEN ESTROGENS SHOULD NOT BE USED

During pregnancy (see Boxed Warning). If you think you may be pregnant, do not use any form of estrogen-containing drug. Using estrogens while you are pregnant may cause your unborn child to have birth defects. Estrogens do not prevent miscarriage.

If you have unusual vaginal bleeding which has not been evaluated by your doctor (see Boxed Warning). Unusual vaginal bleeding can be a warning sign of cancer of the uterus, especially if it happens after menopause. Your doctor must find out the cause of the bleeding so that he or she can recommend the proper treatment. Taking estrogens without visiting your doctor can cause you serious harm if your vaginal bleeding is caused by cancer of the uterus.

If you have had cancer. Since estrogens increase the risk of certain types of cancer, you should not use estrogens if you have ever had cancer of the breast or uterus.

If you have any circulation problems. Estrogen drugs should not be used except in unusually special situations in which your doctor decides that you need estrogen therapy so much that the risks are acceptable. Women with abnormal blood clotting conditions should avoid estrogen use (see **RISKS OF ESTROGENS AND/OR PROGESTINS**).

When they do not work. During menopause, some women develop nervous symptoms or depression. Estrogens do not relieve these symptoms. You may have heard that taking estrogens for years after menopause will keep your skin soft and supple and keep you feeling young. There is no evidence for these claims and such long-term estrogen use may have serious risks.

After childbirth or when breastfeeding a baby. Estrogen should not be used to try to stop the breast from filling with milk after a baby is born. Such treatment may increase the risk of developing blood clots (see **RISKS OF ESTROGENS AND/OR PROGESTINS**).

If you are breastfeeding, you should avoid using any drugs because many drugs pass through to the baby in the milk. While nursing a baby, you should take drugs only on the advice of your health care provider.

RISKS OF ESTROGENS AND/OR PROGESTINS

Cancer of the uterus. The risk of cancer of the uterus increases when estrogens are used alone, the longer they are used and when larger doses are taken. There is a higher risk of cancer of the uterus if you are overweight, diabetic, or have high blood pressure.

The hormone combination you will be taking contains estrogen and progestin. This combination has been shown to provide the benefits of estrogen replacement therapy while reducing the risk of a precancerous condition of the uterine lining.

Additional risks may be associated with the inclusion of a progestin in estrogen treatment. The possible risks include unfavorable effects on blood fats and sugars. Usually, the smaller the dose and the shorter the duration of treatment, the more these effects are minimized. Check with your doctor to make sure you are using the lowest effective dose and only for as long as you need it.

Cancer of the breast. Most studies have not shown a higher risk of breast cancer in women who have ever used estrogens. However, some studies have reported that breast cancer developed more often (up to twice the usual rate) in women who used estrogens for long periods of time (especially more than 10 years), or who used high doses for shorter time periods. The effects of added progestin on the risk of breast cancer are unknown. Some studies have reported a somewhat increased risk, even higher than the possible risk associated with estrogens alone. Others have not. Regular breast examinations by a health professional and monthly self-examination are recommended for all women.

Gallbladder disease. Women who use estrogens after menopause are more likely to develop gallbladder disease needing surgery than women who do not use estrogens.

Abnormal blood clotting. Taking estrogens may increase the risk of blood clots. These clots can cause a stroke, a heart attack or a pulmonary embolus, any of which may cause death or serious long-term disability.

Excess calcium in the blood. Taking estrogens may lead to severe hypercalcemia in women with breast and/or bone cancer.

During pregnancy. There is an increased risk of birth defects in children whose mothers take this drug during the first four months of pregnancy. Several reports suggest an association between mothers who take these drugs in the first trimester of pregnancy and genital abnormalities in male and female babies. The risk to the male baby is the possibility of being born with a condition in which the opening of the penis is on the underside rather than the tip of the penis (hypospadias). Hypospadias occurs in about 5 to 8 per 1,000 male births and is about doubled with exposure to these drugs. There is not enough information to quantify the risk to exposed female fetuses. However, enlargement of the clitoris and fusion of the labia may occur, although rarely.

Therefore, since drugs of this type may induce mild masculinization of the external genitalia of the female fetus, as well as hypospadias in the male fetus, it is wise to avoid using the drug during the first trimester of pregnancy. These drugs have been used as a test for pregnancy, but such use is no longer considered safe because of possible damage to a developing baby. Also, more rapid methods for testing for pregnancy are now available. If you take PREMPRO and later find you were pregnant when you took it, be sure to discuss this with your doctor as soon as possible.

SIDE EFFECTS WITH ESTROGENS AND/OR PROGESTINS

In addition to the risks listed above, the following side effects have been reported with estrogen and/or progestin use:

- Nausea, vomiting; pain, cramps, swelling, or tenderness in the abdomen.
- Yellowing of the skin and/or whites of the eyes.
- Breast tenderness or enlargement.
- Enlargement of benign tumors of the uterus.
- Irregular bleeding or spotting.
- Change in amount of cervical secretion.
- Vaginal yeast infections.
- Retention of excess fluid. This may make some conditions worsen, such as asthma, epilepsy, migraine, heart disease, or kidney disease.
- A spotty darkening of the skin, particularly on the face; reddening of the skin; skin rashes.
- Worsening of porphyria.
- Headache, migraines, dizziness, faintness, or changes in vision (including intolerance to contact lenses).
- Mental depression.
- Involuntary muscle spasms.
- Hair loss or abnormal hairiness.
- Increase or decrease in weight.
- Changes in sex drive.
- Possible changes in blood sugar.

REDUCING THE RISKS OF ESTROGEN/PROGESTIN USE

If you decide to take an estrogen/progestin combination, you can reduce your risks by carefully monitoring your treatment.

See your doctor regularly. While you are taking PREMPRO, it is important to visit your doctor at least once a year for a checkup. If you develop vaginal bleeding while taking estrogens, you may need further evaluation. If members of your family have had breast cancer or if you have ever had breast lumps or an abnormal mammogram (breast x-ray), you may need to have more frequent breast examinations.

Reassess your need for treatment. You and your doctor should reevaluate your need for estrogens at least every six months.

Be alert for signs of trouble. Report these or any other unusual symptoms to your doctor immediately:

- Abnormal bleeding from the vagina.
- Pains in the calves or chest, a sudden shortness of breath or coughing blood.
- Severe headache or vomiting, dizziness, faintness, or changes in vision or speech, weakness or numbness of arm or leg.
- Breast lumps.
- Yellowing of the skin and/or whites of the eyes.
- Pain, swelling, or tenderness in the abdomen.

OTHER INFORMATION

Estrogens increase the risk of developing a condition (endometrial hyperplasia) that may lead to cancer of the lining of the uterus. Taking progestins, another hormonal drug, with estrogens lowers the risk of developing this condition.

You should know, however, that taking estrogens *with* progestins may have unhealthy effects on blood sugar, which might make a diabetic condition worse.

Some research has shown that estrogens taken *without* progestins may protect women against developing heart disease. However, this is not certain. The protection shown may have been caused by the characteristics of the estrogen-treated women and not by the estrogen treatment itself. In general, treated women were slimmer, more physically active, and were less likely to have diabetes than the untreated women. These characteristics are known to protect against heart disease.

It is important to discuss, in detail, with your doctor or health care provider all the possible risks and benefits of long-term estrogen and progestin treatment as they affect you personally.

This Summary provides the most important information about PREMPRO. If you want to read more, ask your doctor or pharmacist to let you read the professional labeling.

This Brief Summary for Direct-to-Consumer Advertising is based on the current PREMPRO Tablets insert (PI 4285-2) issued February 10, 1995 with the incorporation, in lay language, of pertinent text from the Physician Insert, (CI 4283-2) issued February 10, 1995.

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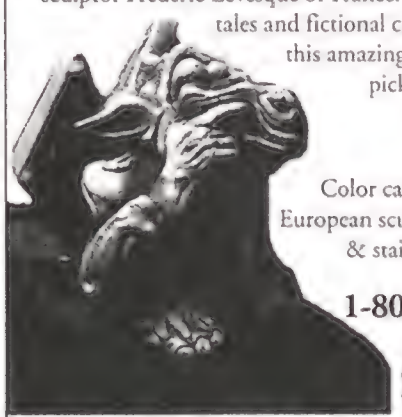

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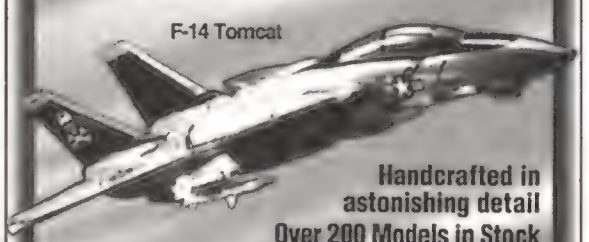

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Smithsonian Highlights

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Begin your visit at the Smithsonian Information Center's Associates' Reception Desk—open 9 A.M.-4 P.M. daily—in the Castle.

Museum Hours

Smithsonian museums are generally open 10 A.M.- 5:30 P.M. daily, except December 25. Hours for the Anacostia Museum are 10 A.M.- 5 P.M. daily. Hours at the National Zoo are 9 A.M.- 4:30 P.M. daily for buildings, and 8 A.M.- 6 P.M. for grounds.

Smithsonian Web Site

The Smithsonian home page on the World Wide Web (http://www.si.edu) offers on-line information about exhibitions, collections, products and events.

American Indian Heritage Month

The Smithsonian is celebrating American Indian Heritage Month during November with a variety of programs. For information, call (202) 357-2700, 9 A.M.-4 P.M. daily. For 24-hour recording, call (202) 357-4574 (English) or (202) 633-9126 (Spanish) starting November 1.

The Contributing Membership

The Contributing Membership supports the Institution's work in education, research and collections programs. Partially tax-deductible contribution categories are: Supporting, $60 (available only to non-D.C. area residents); Donor, $125; Sponsoring, $300; Sustaining, $600; Patron, $1,200; James Smithson Society, $2,000. Members enjoy special benefits including Smithsonian publications, the engagement calendar and behind-the-scenes tours. For additional information write to The Contributing Membership, 1100 Jefferson Drive S.W., Smithsonian, Washington, D.C. 20560, or call (202) 357-1699.

Special November Exhibits, Events

National Portrait Gallery

Cecilia Beaux and the Art of Portraiture (through January 28) The work of turn-of-the-century artist Cecilia Beaux. See *Highlights Continued*, page 40.

Majestic in His Wrath: The Life of Frederick Douglass (through November 19) Paintings, photographs and memorabilia.

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P803

Bird's-eye view of Washington, D.C.'s Sixth Street Wharf (c. 1863) by Charles Magnus is in the "Southern City" show at the Anacostia and Octagon museums.

National Museum of American Art
Elihu Vedder's Drawings for the Rubáiyát (November 10-June 9, 1996) Show features the artist's original drawings for the *Rubáiyát of Omar Khayyám* (1884).
Metropolitan Lives: The Ashcan Artists and their New York (November 17-March 17, 1996) Paintings, pastels, drawings and prints by such American artists as Robert Henri, John Sloan and George Luks.

Renwick Gallery
Rick Dillingham (1952-1994): A Retrospective (through January 1, 1996) Unique ceramic works were inspired by archaeology and architectural forms.

National Air and Space Museum
Flights of Fancy: Photographs by Jacques-Henri Lartigue, 1904-1922 (through March 3, 1996) Images capture the early years of aviation.
The Enola Gay (runs indefinitely) Exhibition features the forward fuselage of the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima. For information, call (202) 786-2122.
Africa: The Serengeti (6:15 P.M. daily starting November 17) New Imax film tells the story of the greatest migration of land animals on the planet.

National Museum of Natural History
Landscape Kimonos by Itchiku Kubota (November 16-April 14) Japanese artist Itchiku Kubota revived an ancient dyeing technique to create a series of elaborate, hand-wrought kimonos.
Ocean Planet (through January 1, 1996) Major exhibition looks at the causes and consequences of environmental threats to the world's oceans.
Gem and Mineral Hall Gallery is closed for renovation until December 1996.

National Zoological Park
Pollinarium New permanent exhibition examines the pollination process.
Think Tank New permanent installation explores the biology and evolution of animal thinking.

National Museum of American History
Arab Americans in Greater Detroit (November 7-March 1996) Photographs provide insight into the daily life of America's largest Arab-American community.
American Encounters Permanent exhibit focuses on American Indian, Hispanic and Anglo-American cultures of New Mexico's Upper Rio Grande Valley.
First Ladies: Political Role and Public Image Permanent display looks at the various roles of our nation's First Ladies.

National Postal Museum
Located next to Union Station on Capitol Hill, the museum presents exhibitions that trace the history of the nation's mail service.
Rarities: With Love From Nashville (November 7-July 20, 1996) Rare stamps and covers reflect the history and culture of the state of Tennessee.

Freer Gallery of Art
Whistler & Japan (through January 1, 1996) Works executed by James McNeill Whistler during the 1860s and '70s and known as his "Japanese pictures."

Arthur M. Sackler Gallery
Traders and Raiders on China's Northern Frontier (November 19-September 2, 1996) Artifacts from first millennium B.C.
Goyō: Japanese Prints (through March 17, 1996) Color woodblock prints by Hashiguchi Goyō (1880-1921).

National Museum of African Art
Three Explorations: Yoruba, Temne, and Baga (November 22-February 25, 1996) Exhibit examines a Yoruba mask, a Temne female figure and a Baga ritual object.
Art from the Forge (through January 2, 1996) Metal jewelry, ceremonial armor and furnishings made by the Tuareg and Moor peoples of West and North Africa.

Arts and Industries Building
Equal Rights and Justice (through March 3, 1996) Exhibition features contemporary art inspired by events in the civil-rights movement.
Discovery Theater
Live theater for young audiences. For information, call (202) 357-1500.

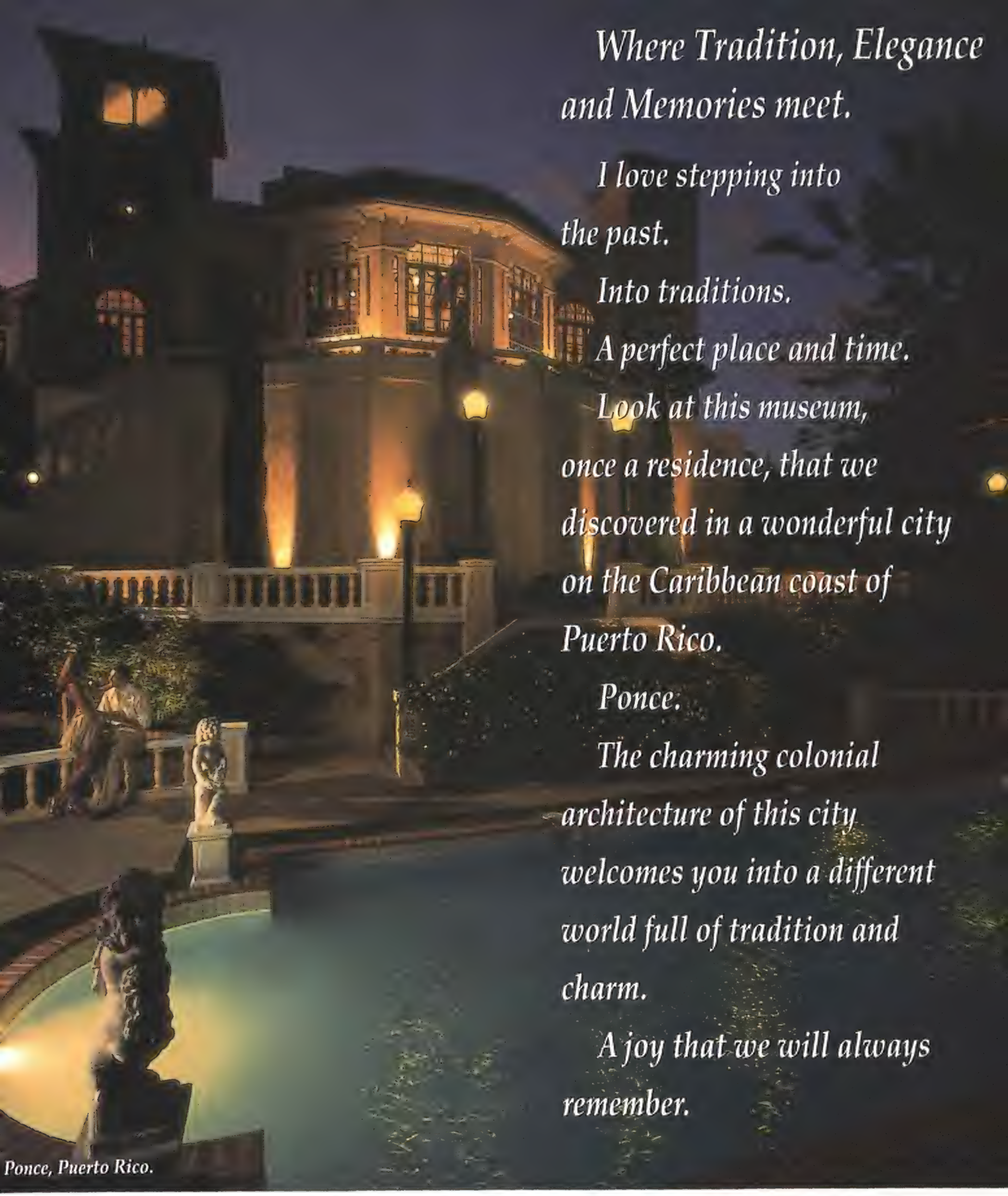
Hirshhorn Museum & Sculpture Garden
Directions—Carmen Lomas Garza (November 18-February 18, 1996) Works by the contemporary artist present visual narratives of Mexican-American life.

Anacostia Museum
Southern City, National Ambition: The Growth of Early Washington, D.C., 1800-1860 (through March 3, 1996) A joint presentation with the Octagon Museum, the exhibit includes artifacts, drawings and manuscripts from the early history of the District of Columbia.

S. Dillon Ripley Center, International Gallery
Voyages and Visions: Nineteenth-Century European Images of the Middle East from the Victoria and Albert Museum (through January 1, 1996) Watercolors, drawings, reflect expanded European interest in the Middle East in the 19th century.

Heye Center, National Museum of the American Indian (New York)
Creation's Journey: Masterworks of Native American Identity and Belief (runs indefinitely) First of three inaugural exhibits features objects selected for their beauty, rarity and historical significance.

Cooper-Hewitt, National Design Museum (New York)
Gallery Closing The exhibition galleries of the museum are closed to the public for renovation for about one year.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Highlights Continued

The discerning eye of Cecilia Beaux

In the fall of 1899, the celebrated portraitist Cecilia Beaux won a coveted gold medal at the Carnegie Art Institute's international exhibition. In his presentation address, artist William Merritt Chase called Beaux "the greatest woman painter of modern times." A major retrospective of the work of this remarkable artist is now at the National Portrait Gallery. "Cecilia Beaux and the Art of Portraiture," on view through January 28, 1996, features an elegant array of engaging portraits in the "grand manner."

Born in Philadelphia in 1855, Beaux began formal art instruction at age 16. By the turn of the century she had established an international reputation, exhibiting regularly at home and abroad. "Beaux had talent, opportunity, drive and ambition," says exhibition curator Tara Leigh Tappert. "Her bravura brushwork, original composition and insight into human character made her one of the most highly sought-after portrait painters of the day."

Diane M. Bolz

Self Portrait (1894) was done to meet a requirement of artist's admission to the National Academy of Design.

Beaux caught the tenacious spirit of nephew Cecil Kent Drinker in a work shown at the 1893 Columbian Exposition.

Whistler's influence is evident in artist's posing of her beloved 87-year-old grandmother (detail), from 1885.

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By John F. Ross

RISK: Where do real dangers lie?

The first of a two-part series

We have always had to assess the chances that bad things will happen; now, new tools give us hard numbers but also raise new questions

The aftermath of the earthquake is frightening: fanned by strong winds from the west, fire races across the city of San Francisco. I can't help but hold my breath as I witness this Armageddon.

I look up from the computer monitor and stare outside. It's rainy but otherwise an ordinary day in the Bay Area. On the screen the simulation continues, the computer counting the minutes as fire engines, represented by flashing blips, move along a gridwork of streets to battle the inferno. Hemant Shah of Risk Management Solutions has re-created the conditions of the 1906 San Francisco earthquake and overlaid it onto today's city. The company performs this simulation to anticipate what might happen in the event of a quake. Factored into this model are countless specifics that only a computer could juggle: the location of gas mains, the kinds of firebreaks, the speed of fire engines battling rubble in the roadways, the type of construction of various buildings, as well as soil types and ground conditions.

Seven hours later, when the fires have burned out or been controlled, a series of blimp- and cigar-shaped splotches mar the city grid; they indicate fire damage. With this information, Shah can calculate the claim costs for an insurance company.

The insurance industry has been burned recently by earthquakes, hurricanes and tornadoes. Florida's Hurricane Andrew alone bankrupted nine insurance companies. Itchy to know their vulnerability to natural hazards and their "probability of ruin," insurance companies have lined up for the help of Risk Management Solutions. Shah's company is on the leading edge of the new science of risk theory: how we recognize, understand and manage the hazards that surround us. On Capitol Hill last summer, the House passed legislation requiring both risk assessment and cost-benefit analysis before any new federal regulations are imposed. A similar bill stalled in the Senate. It appears that "risk analysis," "risk management" and "risk communication" will become trendy phrases on the lips of politicians, health experts and environmentalists.

We've always been concerned with risk, defined as the probability that something harmful will occur. Yet the past 15 years have brought an explosion of interest, as computers, statistical databases and highly sensitive quantitative techniques bring new tools to the task of assigning hard numbers to probabilities that range from the personal and mundane to the global and catastrophic. How we interpret and use these numbers is influencing how we live our lives, as well as how our society allocates limited resources. The numbers can embolden us

The game of risk is not unlike roulette: making the right decisions is akin to choosing the right numbers.

Illustrations by Kate Mueller

to feel that we are masters of the Universe. Or they can make us feel despondent under the burden of making correct decisions. The subtleties of the questions ripple through the fabric of our society and threaten to recast the way we view the world.

Each of us makes hundreds, if not thousands, of risk assessments every day. How fast will we drive if we're late for an appointment? Is speeding, with its risk of a ticket and increased chances of an accident, worthwhile if the meeting is important? Is a healthful lunch worth an extra expense? Should you place your retirement portfolio in stocks, a more risky path than some other investments but one more likely to keep pace with inflation over the long run? Lately it seems that understanding the risks in our daily lives has become a full-time job as we're bombarded constantly with warnings and new findings.

At a toxic waste site, should cleanup continue until a child can safely eat dirt there each day for 250 days?

If we want to stay healthy, we must become risk experts ourselves and sort through the overwhelming and often complex information swirling around us like a dust cloud. Much of the material is contradictory: read periodic press reports about caffeine and you'll never know whether or not it's OK to drink coffee. Based on observations made a decade ago on the Greenland Inuit diet, we've learned to eat fish more often. Now a new study from the Harvard School of Public Health finds that eating fish does not make any difference in the rate of heart disease among men. Reports conflict on whether we should have an occasional glass of wine for good health or steer clear of it to avoid breast cancer; on whether we should spread butter with its saturated fats or margarine with its trans fatty acids; on whether we should take an aspirin a day to keep the doctor away or avoid it altogether for fear of bleeding ulcers and other side effects.

Then there's the whole category of possible risks on which the scientific community remains divided. Take radon, for example. This is an odorless, radioactive gas that seeps from the ground into many basements. It could be one of our chief environmental health risks, with 1 in every 15 homes estimated to have elevated radon levels. Worse, it could be causing anywhere from 7,000 to 30,000 lung cancer deaths a year. Yet some scientists are suggesting that radon is not a significant health risk. In some cases, science just can't give us a definitive answer. The fear of litigation adds even more confusion to the picture as manufacturers and employers issue absurd warnings to protect themselves.

Infectious organisms in your pocket

While confusion reigns in some areas, solid numbers are being nailed down in others, data unequivocal enough to change the ways all of us think about risks. Did you know, for example, that in this country about one person a year dies from ingesting a toothpick? This minuscule death rate is actually higher than that attributed to widely feared asbestos. Did you know that more people die using crosswalks than while jaywalking? (Most people use the crosswalks, and jaywalkers tend to be more alert.) Do you worry about picking up a germ while visiting a friend in the hospital? You're more likely to acquire germs from the money in your pocket right now. One out of every ten coins and almost half the paper currency carry infectious organisms.

Risk itself has always been a part of our landscape; responses to some risks are hard-wired into our beings in the form of instinct. A finely tuned recognition of immediate risks to our body is a prerequisite for survival. No risk will ever be clearer than a saber-toothed tiger stalking one of our ancestors. More complex risk assessments, however, require calculating the ratio of costs to

benefits, rather than just responding to a hazard. When Cro-Magnon man, armed only with a spear and his cunning, decided to hunt a mastodon the size of a small house, he knew that he stood great risk, but the potential gain (enough meat to feed his family for a long time) was also great. Modern risk theory would probably suggest that he chase rabbits year-round instead.

In our complex and technological society, threats to our person are usually less immediate. In some cases, technological advances have turned once life-furthering biological imperatives into life-threatening ones. Our bodies, for instance, crave fat, a way of storing energy for times when resources are scarce. Today in the industrialized West we can eat as much fat as we like, but that desire is making us ill with heart disease, obesity and a host of other problems.

How much are we willing to pay?

While risks abound, the good news is that Homo sapiens has been particularly ingenious at inventing ways to minimize risk. In the parlance of risk theorists, this approach is called risk management. Thus, as I slip into my car for a short trip to the drugstore to pick up antibiotics for my son, a warning beeps if I don't don my seat belt and, down the road, guardrails prevent me from skidding off an embankment. Undoubtedly, driving will be the most hazardous aspect of my day (110 Americans die in car accidents daily). On the radio I hear that some stocks I've bought are down, but I'm not overly concerned because they're among hundreds of others in a mutual fund that spreads the risk. When I pick up my son's medicine, I fumble with the childproof cap, an ingenious risk-management device. The downside of the antibiotics and these other risk-management tools is that they cost money. They are a choice: the money spent to buy antibiotics is no longer available to buy something else. Similarly, billions spent to clean up Superfund sites are not available to, say, immunize children. Yet most of us agree that these particular strategies are well worth the price. But how far will we go, or how much are we willing to pay, to minimize other risks where the payoffs are less clear-cut? That's where risk theory gets interesting.

The discipline of risk assessment has come from the melding of several different areas of study. Any meeting of risk experts today will probably include engineers, safety experts, physiologists, policy analysts, psychologists, toxicologists and statisticians. An early form of the science came with the discovery of radioactivity at the turn of the century, prompting biologists and health physicists to examine the health impact of exposure to the curious new phenomenon. Later, studies of the survivors of Hiroshima and Nagasaki provided information on the effects of severe doses of radiation. Engineers

Is a healthful breakfast hazardous to your health? At times it seems as if everything we eat is bad for us.

also contributed fundamental information for risk analysis as they pored over the safety of nuclear power plants, dams, chemical plants and other large civil projects. They designed models and contingencies based on the probabilities of certain failures—and strings of failures—occurring. Their pioneering work in "what if" modeling is still used today.

Another building block of risk assessment was the compilation of fatality statistics for automobiles and airplanes that began in the 1930s. In 1975 the National Highway Traffic Safety Administration set up a computerized data file called the Fatal Accident Reporting System. It now contains information about the more than 800,000 highway deaths that have occurred since then, recording details that range from the speed and make of the vehicle to the time of day and the age and sex of those involved. Using these results, traffic safety scientists have been able to characterize the risks of driving. While common sense dictates that a larger car is safer to

drive, the numbers tell us how much: overall, you are 17 times more likely to die in a head-on crash if you're driving a small vehicle. Wearing seat belts reduces the chance of the driver's dying in an accident by 42 percent.

Large epidemiological studies over time have revealed links between certain activities and higher mortality—smoking cigarettes, for instance, is a big one. Again, while we could intuit that smoking was not great for our health, the crunching of large numbers began to show clear and certain correlations—and was the genesis of the Surgeon General's ubiquitous warning label. Squeezing the numbers further, some scientists now say that, statistically, one cigarette cuts five minutes off your life span. Other numbers are even more disturbing. For example, unemployment beats out steeplejacking as the riskiest "occupation." So heightened is your risk of suicide, liver cirrhosis from drinking alcoholic beverages, and other stress-related diseases while not working, that being unemployed rates as the equivalent of smoking ten packs of cigarettes a day. Being poor is equally dangerous. Living in poverty reduces your life expectancy by about nine years. But there's good news as well as bad. If you're a man, think about getting married: the averages suggest that you will outlive your bachelor friends by five years.

Feeding megadoses to white rats

While epidemiologists were making these correlations, toxicologists were testing carcinogens on living creatures. Laboratory animals that were fed huge quantities of certain chemical compounds would develop tumors. This result was extrapolated to humans—though the debate about the applicability of these tests to humans still runs hot. As a result, in 1958 Congress devised the Delaney Clause, which forbade the use of any chemical in processed foods that produces tumors in laboratory animals at any dose.

Before the 1970s, risk from contaminants was a pretty much black-and-white issue. Scientists simply looked at whether the pesticide DDT, for instance, was carcinogenic (cancer causing) or mutagenic (gene mutating). Back then, only a handful of chemicals appeared to cause cancer. Today, two-thirds of the more than 800 chemicals tested so far have been found to cause or promote tumors in rodents. Yet more than 50,000 synthetic chemicals remain untested. Now we also know that carcinogens differ enormously in potency, so it's no longer a matter of either/or but also of how much.

Complicating the science of cause and effect are our great leaps in quantitative chemical analysis. In the 1950s, scientists measured things in parts per million. Today, with modern equipment, scientists can measure amounts down to parts per trillion (1,000,000,000,000). Thus you could have a situation where a processed food

Each of us walks a tightrope. Diseases, accidents, toxins: any of these could plunge us into an abyss.

was found to contain one part per trillion of a compound known to cause tumors in rats when administered in massive doses. Under the Delaney Clause, that food could not be sold, even though no one can show that having the contaminant present at such a low level could cause cancer in humans.

All of life is a risk. Take a deep breath and hold it. You've probably inhaled molecules of Earth's deadliest toxins: dioxin, radon, benzene, formaldehyde. How do we understand the effect of something so small on the human body, and should we be concerned? At what point do real risks begin and others remain negligible? Certainly the Delaney Clause of 1958, with its zero-risk intentions, is hopelessly out of date with what we know

Although he knows the odds are heavily against him, John F. Ross occasionally plays the lottery. He is a freelance writer, living in Bethesda, Maryland.

But the pink slip is a menace too—for the stress of unemployment is among the greatest dangers of all.

today. Yet before Congress sweeps it into the dustbin, new guidelines on food safety will have to be thrashed out, which will be no easy task.

The numbers themselves present another problem because most of us (myself included) find it hard to visualize anything larger than 1,000 units of anything. In our largely innumerate society, risks expressed as 1:10,000 or 1:1,000,000 seem little different. Risk communication, the third branch of risk science, addresses the need to put these numbers into context; it is about how you and I understand risk in our lives. And we don't always do a very good job.

In a landmark test in 1980, a group of psychologists asked a representative sampling of the populace to rank 30 activities and technologies by risk; then they compared the results with rankings assigned by a panel of risk-assessment experts. In places, the two groups agreed, such as on the risk of motor vehicles, placed number one by the experts and number two by the public. But on others, there were large discrepancies: the public rated nuclear power as their number one risk, whereas the experts ranked it as a lowly number 20. Experts ranked x rays as number 7, while the man-in-the-street saw them as number 22. What, the risk-communication scientists next asked, was influencing the public's perception of risk?

For starters, they found that the public responds differently to voluntary and involuntary risks. You and I are willing to tolerate far greater risks when it is our own doing, such as smoking cigarettes or climbing mountains. But if the risk is something we can't control, such as pesticides on food or radiation from a nuclear power plant, we protest, even if the threat is minimal.

We remember only spectacular deaths

Second, we tend to overestimate the probability of splashy and dreadful deaths and underestimate common but far more deadly risks. Many people can remember nearly every case of botulism in the United States because the incidence of it is so small and the press coverage so large. This results in a perception that the risk is higher than it really is. Along with botulism, people tend to overestimate the risk of death by, say, tornado. On the other hand, stroke and heart attack, which have affected all of our lives in some form, don't seem as dreadful, probably because they are so common. The general public ranks accident and disease on an equal footing, although disease takes about 15 times more lives. Although 40,000 people die on American highways each year, and another 400,000 from smoking-related diseases, a single crash of a jetliner with 300 people aboard draws far more attention from the press. Spectacular deaths make the front page; ordinary deaths wind up back on the obituary page.

Yet another factor about how we rank risks revolves around whether or not the risk is perceived as "natural." Although I am generally good about applying sunscreen, sometimes I forget and I'll get a burn. What seems more natural than an outdoor activity on a nice sunny day? Yet it involves serious risk: skin cancer, for starters. The National Cancer Institute has computed that one serious sunburn can increase your risk of skin cancer by as much as 50 percent. Over a lifetime, one out of every seven people in the United States could develop melanoma or other skin cancer from overexposure to the sun. Yet people often remain lackadaisical about applying protective lotion. Because the sun is "natural," it doesn't carry the specter of death associated with the asbestos used in insulation. Asbestos poisoning, however, is an insignificant threat to Americans when compared with cancer caused by sun worship.

Perhaps the most dramatic example of erroneous

public perception of unnatural and involuntary risk occurred in 1989 when CBS News' *60 Minutes* ran a show alleging that the chemical daminozide—under the trade name Alar—put children at great risk for cancer. Used by a small percentage of the nation's apple growers in the 1980s, mostly on red delicious apples, Alar is a growth-regulating chemical that is applied to keep apples from falling off the tree too early. Backed by a large apple and a skull and crossbones, anchorman Ed Bradley reported that Alar was the "most potent cancer-causing agent in the food supply today." In 24 hours, the country erupted in fear and panic. A woman called the Environmental Protection Agency and asked if she could pour her apple juice down the drain or whether she should take it to a toxic waste dump. School districts in Los Angeles, New York and other cities immediately banned apples and apple products from their cafeterias, and many millions of dollars' worth of apples were dumped into ditches. Actress Meryl Streep, a concerned mother, joined the fracas: in a TV commercial she used a detergent to wash pesticides off vegetables. The public appeared to believe that one bite of an apple treated with Alar could strike you dead. The apple industry lost more than $100 million, and a number of small-scale growers, many of whom had never even used Alar, went out of business.

Asbestos in classrooms may be a hazard to children, but greater dangers may lurk outside of school.

The panic originated from a controversial report of questionable science in which laboratory mice developed tumors when exposed to 35,000 times the amount of Alar that children were normally exposed to. Uniroyal, the maker of Alar, took it off the market. Later, several independent reviews found the threat minuscule, but by that time the notion of "deadly Alar" was firmly entrenched in the public's mind, and it remains off the market today.

Bruce Ames, an outspoken molecular biologist at the University of California at Berkeley, dismisses the Alar episode as a purely emotional reaction by a news media and public not fluent with relative risks. His research suggests that the human role in putting carcinogens into the food supply—in the form of pesticide residues—is minimal compared with what nature does. Over time, all plants have evolved sophisticated biochemical defenses against their enemies: fungi and herbivores. Lettuce, celery and beets contain caffeic acid; peanuts, corn and milk can contain mold toxins, such as deadly aflatoxin and sterigmatocystin; eggs contain benzene. Even the process of cooking food produces carcinogens. These naturally occurring chemicals are as carcinogenic as any synthesized by chemists. After Ames added up all the naturally occurring chemicals in a regular diet, he found we eat 10,000 times more natural than man-made pesticides.

Those carcinogens in your coffee

Coffee, Ames says, is not dangerous, but it contains 1,000 natural chemicals, and only 26 have been tested. Of these, 19 have produced cancer in laboratory animals. Under the current law, if coffee were synthetic, the FDA would ban it. Yet the cancer risk of an apple with Alar residue is far less than the risk from the natural compounds in a cup of coffee. Ames throws the pesticide controversy on its head by suggesting that pesticides actually decrease our incidence of cancer. Pesticides reduce production costs, thus making fruits and vegetables cheaper. So, he concludes, more people will eat more fruits and vegetables—a proven strategy for significantly reducing cancer and heart disease.

Cancer is the risk people worry about more than any other. In 1981 Congress' Office of Technology Assess-

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Nowadays more and more of us are moving to the areas that are most threatened by natural hazards—earthquakes in California, tornadoes in Texas, and frequent hurricanes in Florida and up the East Coast.

ment commissioned two Oxford epidemiologists, Richard Doll and Richard Peto, to examine the roots of cancer in this country. (Doll and Peto are the scientists who perfected the technique of meta-analysis: looking at all the studies done on a subject in a statistically weighted way so that more information, and more certainty, can be extracted than from any of the individual studies.) They found that roughly one-third of the cancers were caused by smoking and smoking-related behavior, another third by diet, and the remainder mostly by lifestyle choices, such as occupational and recreational activities. Environmental carcinogens accounted for only 2 percent of all cancers, they wrote.

Such results have been music to the ears of those opposed to government regulation and have made risk analysis less than popular with many environmental groups. As the Environmental Protection Agency can attest, however, the health of human beings is not the only reason to try to protect the environment. Threats to other species, to ecosystems, even to the entire planet must enter the equation. More than any other governmental agency, the EPA has furthered the science of risk analysis, which has become one of the agency's best tools in supporting its mission to evaluate the health of the environment and regulate threats to it.

In 1987 the EPA did a study titled "Unfinished Business." The agency found that it was spending vast sums of taxpayer money on certain activities that were inconsequential to the number of lives saved and the overall environmental impact. A prime example is the Superfund, the pot of money designated for cleaning up toxic waste dumps. Everybody agrees that toxic waste dumps do not represent our finest hour. But should we spend billions of dollars to clean them up to the last speck? How did the EPA define the group at risk if the cleanup were to be less than total? Very conservatively. Suppose, for example, that some pollutant has accumulated in the bottom of a pond. How much cleanup should the EPA require? Not down to the last molecule, the answer comes, but enough, in some cases, so that a child could eat bits of that mud for 250 days a year without becoming seriously ill. Our emotional reaction to and abhorrence of toxic waste dumps have spurred us into remarkable action. We're spending $6.1 billion a year on hazardous waste to prevent as few as 500 cancer deaths a year. Compare that with the $100 million-plus spent on reducing

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In 1992 the U.S. Government incorporated risk assessment into its budget considerations and brought more cost comparisons to the table. It noted that the EPA's regulations ranged from spending $100,000 per premature death prevented (by mandating certain car-safety standards) to as much as $5 trillion (by designating and then regulating wood-preserving chemicals as hazardous waste). Numbers like that last one have led certain scientists to contend that some government programs are the equivalent of "statistical murder" because they take limited resources and devote them to mitigating negligible risks. Any such numbers raise a core question that no one wants to answer. How much is a human life really worth? Is a younger person worth more than an older person? Is it better to save one life or help 10,000 people who are sick all the time? Technology has pushed us into an ethical corner before we've developed the means to find our way out. Risk theory can only sharpen the questions; it cannot by itself solve the ethical dilemmas.

We're also realizing that the trade-offs are not always so clear. Reducing risk in one area may very well increase the risk in another. John Graham at Harvard University uses the example of the fuel efficiency of cars. Most people would agree, he suggests, that higher fuel efficiency in automobiles is a positive goal, representing less air pollution and dependence on foreign oil. If, however, the government pushed up the average miles-per-gallon requirement for new cars from 27 miles per gallon to 40, manufacturers might be forced to make smaller and lighter cars. Graham calculates that these less-safe cars would eliminate the entire safety gains realized from air-bag technology. Is less air pollution worth more fatal accidents? Or take the very costly removal of asbestos from the New York City schools. Some have suggested that the weeks the children spent out of school were far riskier to their health than the actual asbestos itself.

The questions become even more interesting when applied to more-hypothetical risks, the ones with small likelihood but huge impact. Last year, two scientists analyzed in great detail the risk of a large asteroid or comet's hitting Earth in the next century. We're hit often enough by small extraterrestrial debris or meteorites. But there is strong evidence of impacts by larger bodies, the most famous being one that scientists believe occurred on the Yucatán Peninsula 65 million years ago. The dust sent into the atmosphere catastrophically affected Earth's environment and may have led to the extinction of the dinosaurs. Although the chance that it will happen is slim, the consequences of such an impact if it does happen are extraordinarily great. The two scientists calculated that if you live for the next 65 years, you have a 1-in-20,000 chance of dying from an asteroid or comet impact. Compare this with the risk of being killed in events that are far more common but have only local impact: a flood, 1:30,000; a tornado, 1:60,000. To put this in perspective, the chance of being dealt four aces in a hand of five-card stud is 1:50,000.

Should we then develop costly programs to divert an incoming asteroid or meteor with nuclear bomb blasts? Can we afford to, when people on Earth are still dying from more immediate and preventable risks, such as malnutrition and infectious diseases?

Risk Management Solutions' earthquake expert Haresh Shah, who is Hemant Shah's father, suggests that we mostly tend to ignore these large-impact, low-probability risks. Urbanization and growing populations, he believes, are putting people increasingly at risk from natural disasters. We can assume that earthquakes occur with a relatively constant regularity over geologic time. Today, populated areas near fault lines are becoming more and more densely packed at an ever increasing pace. When the 1906 earthquake hit San Francisco, about a half-million people lived in the area. Should a quake of the same size strike today, six million people would be at risk. By the year 2000, more people will live in urban areas than there were people on the entire planet just 50 years ago.

Also by 2000, about 75 percent of all people will live within ten miles of a seacoast, an area often at greater risk from earthquakes and hurricanes.

In the crowded cities, the construction of buildings now proceeds on formerly undesirable locations: reclaimed waterfront land and steep hillsides. Thus when an earthquake hits, many more people are at risk. During Japan's great Hanshin earthquake in January 1995, buildings on two artificial islands in Kobe Harbor were among the hardest hit. In the United States, the top relocation areas are plagued by natural disasters: Florida, hurricanes; California, earthquakes; Texas, tornadoes and hurricanes. Technology is not advancing quickly enough to protect the fast-growing concentrations of people and their attendant economies. While technology will help us chip away at the total percentage of fatalities in natural disasters, the growing numbers of people in high-risk areas will result in larger actual numbers of deaths.

One question remains. Are we safer than we were, say, 100 years ago? A single number gives us that answer. Our life expectancy was 47.3 years at the turn of the century and has climbed to 75.8 years today; it continues to grow. In the past ten years, life expectancy in the United States rose 1.4 years, thanks to better medications, better diets and better risk management in our personal as well as our collective lives. In fact, the cancer we see around us is actually a sign of how well we're doing. Not too long ago, most people didn't live to middle age and rarely got cancer because other, more immediate causes got them first.

Does all this mean you should have an extra pat of butter on your blueberry muffin tomorrow morning? Probably not; you've got to watch your cholesterol, you know. But does it mean you should lose sleep about being bonked on the head by a meteorite? Don't worry, you have a better chance of winning the lottery.

Next month: How does the human body cope with risk?

We are not always good at putting the numbers into context. Some risks we perceive as higher than they really are. Are we then turning our backs on a raging inferno while we douse the flame of a match?

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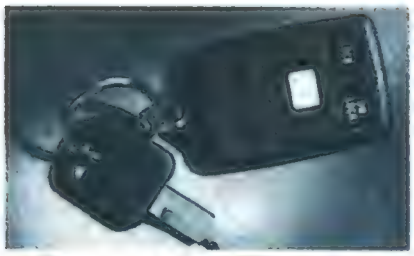

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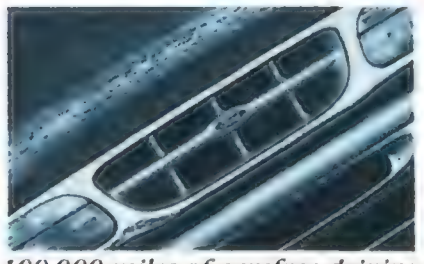

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By Doug Stewart

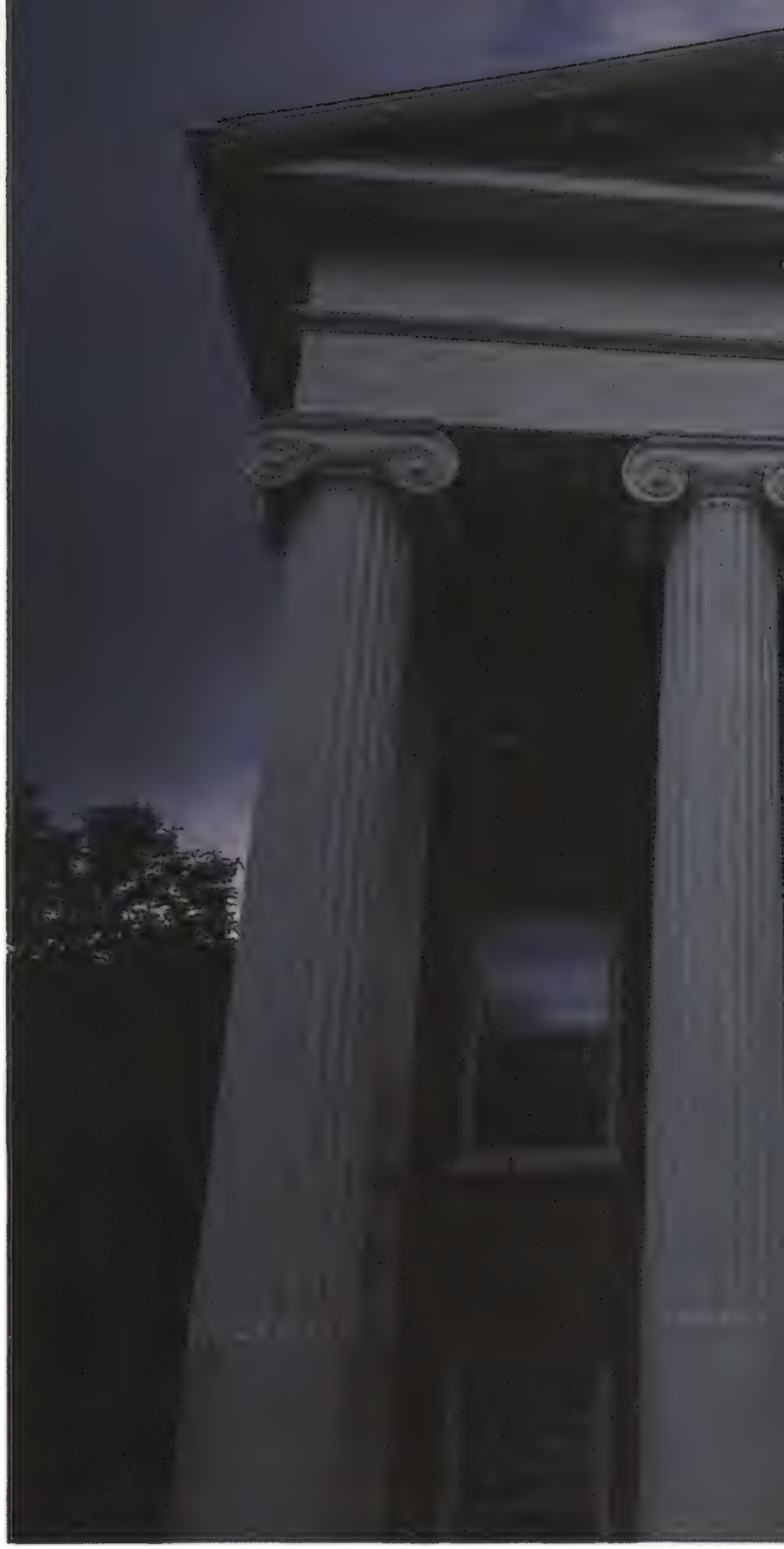
Now playing in academe: the king of rock'n'roll

At the University of Mississippi, the first annual International Conference on Elvis Presley brought together fans and scholars

"My mom doesn't understand Elvis at all," says Marjorie Wilkinson. "She thinks I'm otherwise sane." Wilkinson, 50, is a probate paralegal and a major fan of the late king of rock'n'roll. She's just flown in from Northern California to attend the first annual International Conference on Elvis Presley here at the University of Mississippi. To demonstrate her devotion to Elvis and all his trappings, Wilkinson pulls a snapshot from her purse. "This is a black velvet painting that used to hang in Graceland," she tells me slowly and quietly. Graceland, of course, is Elvis' mansion in Memphis, now a pilgrimage site. The painting is a peacock with Christmas tree lights to illuminate the tail spots. Her mother doesn't know it, but Wilkinson paid four figures for the painting. Sensing perhaps that I want further proof of her credentials as a fan, she adds, "I don't have a snapshot of my daughter with me, but I do have one of Elvis."

Wilkinson is one of nearly a hundred people—many of them scholars, teachers, artists and writers; the rest, well-heeled fans—who have paid $350 to attend "In Search of Elvis: Music, Race, Religion, Art, Performance." The six-day convocation is hosted by the University of Mississippi's renowned Center for the Study of Southern Culture.

Love him or hate him, you have to admit Elvis is big. Today, in fact, 18 years after his death at age 42, he seems to be bigger than ever. Nearly 500 fan clubs are dedicated to preserving his memory. Ed Franklin, who produces the Elvis impersonators contest in Memphis, estimates there are more than 2,000 performers. (If you'd like to join the roll, you can pay $5,000 for a spangled white jumpsuit identical to the one Elvis wore, or you can make your own using last year's sewing pattern from Simplicity—child sizes available.) And let's not forget: Bill Clinton might well not be President today had he not revived his beleaguered campaign in 1992 when he appeared on late-night TV with his saxophone to blow a few bars from Elvis' first RCA hit, "Heartbreak Hotel." The voters took note: Bill was an Elvis fan!



Mark Hussman, at the Lyceum at Ole Miss, shows how he thrilled conference-goers with Elvis impersonations.

Hussman mimics hand gestures of Elvis, and like the King, throws the song's final note out to the audience.

"Elvis Presley is an icon in many ways," says filmmaker and anthropologist Bill Ferris, the Center's director. "He is the greatest popular culture figure of our century. He is also, because of his background growing up in Tupelo, Mississippi, a figure who represents the poor white working-class culture of the South"—a culture, he adds, that academia has traditionally ignored. "The tendency is to dismiss Elvis as 'poor white trash,'" he says. The Center has held a literary conference on Elvis' tweedier fellow Mississippian, William Faulkner, each summer for 22 years, and it has compiled the world's most comprehensive blues archive. Elvis Presley, says Ferris, is a logical extension of the Center's interests in the South's changing cultures, rich and poor, black and white.

A youthful, mischievous-looking 52-year-old, Ferris has been an Elvis fan since his boyhood in Vicksburg, Mississippi. He remembers reaching through the fence of one of Elvis' pre-Graceland homes in Memphis in the late

Photographs by Will van Overbeek

Robert Lopez, the Mexican Elvis, billed as "El Vez," sings after hours for conferees at Proud Larry's Nightclub.

Elvis hit the big time, then he returned to Tupelo in 1956 and performed for 5,000 rabid hometown fans.

1950s to pluck a few blades of grass; he kept them in his wallet for years. The importance of Elvis as a cultural icon didn't impress him until he began doing research in the South. "In the poor white homes was the photograph of Elvis Presley, usually over the mantel, right where Reverend King's would be in the black homes." Clearly, something was afoot that went beyond rock'n'roll.

Elvis didn't invent rock'n'roll music—he readily admitted he was borrowing the sound of black rhythm and blues. "The colored folks been singing it and playing it just like I'm doin' now, man, for more years than I know," he said in 1956. "Down in Tupelo, I used to hear old Arthur Crudup bang his box the way I do now, and I said if I ever got to the place where I could feel all old Arthur felt, I'd be a music man like nobody ever saw."

When he burst onto the national scene in 1956, hiccupping and gyrating on concert stages, television shows and movie screens seemingly all at once, he defied categorization. Here was a "hillbilly cat" who could sing the blues and croon like Dean Martin (one of his idols). In the straitlaced Bible Belt of the mid-1950s, Elvis from the start used two kinds of hair oil along with wax for the front, dressed like a pimp or perhaps a bullfighter, and wore mascara to make his eyes dreamier.

Elvis was—and still is—a lightning rod for criticism. A music critic in 1956 was disgusted by "the sight of young (21) Mr. Presley caterwauling his unintelligible lyrics in an inadequate voice, during a display of primitive physical movement difficult to describe in terms suitable to a family newspaper." But his fans weren't reading the reviews. His songs shot to the top of all three national music charts: pop, country, and rhythm and blues. Musically speaking, as rock historian Philip Ennis has written, Elvis had taken the grid out of the ice-cube tray.

From the first, the young heartthrob was a man of seeming contradictions. Was he white or black? Male or female? Pious or obscene? Ferris and other speakers at the conference feel his contradictions are a useful way to explore the contradictions of the South itself. Elvis may have scandalized parents of teenagers coast to coast, says sociologist John Shelton Reed of the University of North Carolina, but as a good Southern boy he didn't intend any disrespect. "Aside from the way he moved his lower body, hell, he was a gospel-singing mama's boy," Reed told me after delivering the conference's keynote address. "First thing he did when he made it big was to buy his mama a Cadillac. He wasn't about to scandalize *his* parents."

Elvis, says Reed, illustrates the fine line in traditional Southern culture between puritanism and hedonism, between blues shouting and gospel singing, between Saturday night and Sunday morning. In the late 1950s, Reed himself was a disk jockey at a small Tennessee radio station. "We'd play country songs that told about drinking and adultery and shooting people, then we'd pause to play the 'hymn of the hour.'"

A huge "Welcome Home" banner greeted the King; 14-year-old Wynette Pugh, now Tammy Wynette, was there.

Fans Marjorie Wilkinson, a paralegal, and Mary Hinds, a Congessional press secretary, visit Elvis' birthplace.

Studying Elvis Presley obviously requires something more than literary analysis, which explains why the conference kickoff is an onstage "Tribute to Elvis" featuring a foot-stomping gospel revue followed by a series of five Elvis impersonators: a young Elvis, a middle-aged Elvis, a black Elvis, a Hawaiian Elvis and a Mexican Elvis, known as "El Vez." During the week, we also take in live music at local blues clubs, a number of gospel choirs from local churches and sermons on the subject of Elvis by preachers both white and black. In the auditorium between lectures, we tap our feet to concert footage from different stages of the King's storied career.

The attendees are mostly Southern and female, usually in their 50s, and overwhelmingly white. A smattering of European and Japanese fans have also come. At the conference's opening reception at a café in Courthouse Square, I sit next to Lucy Lee, a deceptively shy-looking woman from Virginia. She's here "on a scholarship" from her husband, she tells me in a slow, honeyed drawl. "I was 12 years old when Elvis was on the *Ed Sullivan Show.* I lived in this little podunk town where nothing ever happened, and I thought this was the greatest thing I'd ever seen. My parents were scandalized, which made it even better. To see him thrust his pelvis around, I found it totally exciting. I have to say, I still do."

At the next table, Mary Hancock Hinds is a louder, more in-your-face kind of Elvis fan. She's wearing a large brass pin on her cap that spells out ELVIS with what she claims are rubies. Some of her other jewelry blinks. A Congressional press secretary, Hinds revels in seeing how often she can slip references to Elvis into the speeches of her boss, Representative Steve Horn of California. If Elvis paraphernalia is now a global cottage industry, Hinds and Marjorie Wilkinson, her onetime college roommate, are two of its most avid consumers. Arriving in Memphis the previous afternoon, they spent five hours shopping for mementos at Graceland.

In keeping with the spirit of the conference, the town of Oxford is doing its part to envelop us in all things Elvisian. Rebel Radio 92.1, the Voice of Ole Miss, is filling the airwaves with the King's tremulous voice. The bookstore across from the county courthouse has, for once, replaced the Faulkner novels in its front window with books like *The Ultimate Elvis, Candids of the King, The Presley Family Cookbook, Elvis Up Close, Elvis in the Army, The Ghost of Elvis* and *Elvis Is Everywhere.* The local movie theater is showing a low-low-budget film about a trampy young woman who becomes convinced she's carrying Elvis' love child (like alien abductions, this is a popular fantasy even today).

Not everyone in Oxford is thrilled with the conference. *The Oxford Eagle* prints a letter from a reader who is "amazed, aghast and incredulous" that Ole Miss has deemed Elvis worthy of academic attention, concluding: "Gentleman, you have been foxed by an English professor with a gift for gab and showmanship." On Tuesday

Pilgrims to Graceland can view photographs of Elvis and his parents, or leave candles or other offerings at his grave.

evening, I catch a snippet of a national news broadcast in which Oxford mayor John Leslie harrumphs that the conference is beneath the dignity of the university and of the town. Over eggs and grits at Smitty's Cafe the next morning, conference organizer Vernon Chadwick, the professor in question, is unruffled by the criticism.

"With something new like this, where you're crossing barriers that exist to keep the so-called cultural barbarians from raiding the ivory tower, you have that hysterical reaction," says Chadwick, who holds degrees from Dartmouth, Yale and Oxford. "To some folks, once this poor white working-class boy from Tupelo is admitted to the university, all is lost."

At 42, Chadwick is too young to have been an original Elvis fan. He is one of a second wave of fans who never seriously noticed Elvis until his death in 1977. By then, the singer was a corpulent, drug-besotted recluse whose favorite venue was Las Vegas. Chadwick attended Oxford that fall. A London theater was running a musical revue about his fellow Mississippian's dramatic rise and fall, with an Elvis impersonator in the starring role. "I must have seen it 30 times," he says. "I was practically intoxicated with this opportunity to get back to my own culture." He later returned to Mississippi to teach a course on Herman Melville (SMITHSONIAN, July 1995), "but I found I couldn't teach Melville without thinking about Elvis," he says. "I ended up finding a nifty trilogy of Elvis-in-Hawaii movies to compare with Melville's three Polynesian novels." Chadwick called the course "Blue Hawaii," though students dubbed it "Melvis."

Thin, bearded and intense-looking, Chadwick is anything but flippant about the academic uses of Elvis. "The distinction between high culture and popular culture is based on race, gender, class, social status—prejudices that I as a teacher am committed to erasing." He points out that Melville's Polynesian novels were best-selling romances that made their author a celebrity. "Only later was Melville elevated to high cultural status." To Chadwick, Elvis deserves the same consideration.

Kay Sloan agrees. Sloan teaches creative writing at Miami University in Ohio, where she is an associate professor of English. She coedited *Elvis Rising: Stories on the King*, culled from the growing body of serious Elvis-inspired literature. On a panel called "Teaching Elvis," Sloan offers some advice that draws murmurs of approval from many of the popular-culture teachers in the audience. "When students want to smirk about Elvis, I ask them to imagine that an ancient Roman performer was discovered who was so popular that people after his death began believing he was resurrected," she says. "No one would question that modern scholars of ancient Rome would find that worthy of study."

To experience something of the world from which Elvis emerged, we pile into two Ole Miss buses one afternoon and head down the highway to Tupelo. Sitting next to me on the drive is Virginia Gilliland, a fan who

Massachusetts writer Doug Stewart most recently wrote for SMITHSONIAN *on saving outdoor sculpture. He says he voted for the "young Elvis" stamp.*

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drove 11 hours to get here from Des Moines. "My family knows what I'm doing here, but all my friends just think I'm here for a conference on Southern culture," she says. "If this was the Faulkner conference, I'd have wanted everyone back home to know."

In Tupelo, we soon learn, Elvis fans are treated as honored guests who can hold their heads high. Three motorcycle cops in matching aviator glasses meet us at the city limits and lead us into town in a flying wedge, sirens whooping. We turn left onto Elvis Presley Drive and stop at a tiny shack at the end. The freshly painted building is surrounded by lawns and a huge parking lot. This, a plaque announces, is Elvis Presley's birthplace, now a museum. When young Elvis lived in this rough-hewn, two-room shack from 1935 to 1938, a guide tells us, there was no central heat, no electricity, no running water. As we file through in small, hushed groups, the aura of history is unmistakable, as though this were the log cabin of some long-dead President.

Our motorcade next squeezes down a side street past Elvis' elementary school and other notable sites in his life (though he lived here only until he was 13). "I'm told they still have Elvis' original library card in there," says Sandy, our guide, as we peer out at the Tupelo library. "Down there is the Lyric Theater, where Elvis supposedly got his first kiss—I can't be sure of that, but that's what people say." We come to a stop downtown, where Main Street is blocked off for a reception in our honor. Elvis music blares from loudspeakers.

After an open-air supper of barbecue and iced tea on Main Street, we go to the Lyric Theater for a musical presentation by onetime friends and neighbors of Tupelo's native son. (It's been said of everyone in Tupelo that he or she taught Elvis his first chord.) A white-haired country singer named Buddy Bain tells of the time young Elvis napped on his living-room couch. Years later, after Bain sold the couch, he heard that the buyer sliced the plastic upholstery into one-inch squares, then sold them all for 50 cents each. "I wonder," says Bain, "if somebody has some of those squares, could they mail me one so I can see if it's really true?" After several other Tupeloans tell well-rehearsed anecdotes about their departed friend, an all-black gospel choir stands and sings a rousing rendition of "Because He Lives."

Later, I ask Kathleen Figgen, a folklorist from Colorado, what she thinks of all the worshipful Elvis stories we've been hearing. Figgen is an Elvis fan, but at 46 she's younger and more detached than the real veterans. "I don't care if the stories are true or not," she says. "I'm interested in the patterns of the stories as they develop and recirculate." As they are told and retold by Elvis' legion of bodyguards, cooks, nurses and hangers-on, and then

Tupelo stories of Elvis are told by (from left) Mary Jenkins Langston, his cook; Corene Smith, wife of pastor at Presley family church; Jack Cristil, local radio announcer; and Bill Booth, who sold Elvis guitar picks.

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THOSE WHO APPRECIATE QUALITY ENJOY IT RESPONSIBLY.

are shared among fans—a favorite tale being about the time Elvis took a shot at the televised image of Robert Goulet singing a song from *Camelot*—they become more polished, she says. "Eventually, there's a body of legends instead of honest recollections."

Figgen's doctoral dissertation focused on Latin American folk religion, and on her first visit to Graceland six years ago she was taken aback by how familiar it all was: the tearful pilgrims, the gravesite offerings, the handwritten notes and prayers. "The last time I came to Candlelight," she says, referring to the annual vigil at Graceland on the eve of the anniversary of Elvis' death, "people were building spontaneous altars on the sidewalk outside with pictures of Elvis." Many of the worshipers were too young to have been fans while Elvis was alive; Elvis the folk saint was evidently attracting new converts. As with Latin American cults, Figgen says, the cult of Elvis has developed its own liturgical trappings. "People now rig up candleholders on their clothes so they can hold a candle and take a photo at the same time."

Curator and folklorist Roger Manley, one of the conference's featured speakers ("Elvis as Outsider Artist"), speculates that Elvis' truncated life is part of his continued allure. We find reality most satisfying, he says, when it's squeezed and reshaped into a story of some kind. "The story of Elvis," says Manley, "is the old story of a poor boy, born of ordinary parents in humble circumstances, amid suffering, who died young but had changed the world before he died." With its simple, dramatic trajectory, the saga of Elvis is an all-purpose outline to which people add their own complexity: Elvis the scruffy, hard-times teenager who, like Clark Kent, steps into a dressing room and emerges moments later a superhero; Elvis the zillionaire destroyed by his own self-indulgence; Elvis the good old boy who was sold out to Hollywood and was ordered to make *Fun in Acapulco.*

Bill Ferris, head of Southern Culture center, calls Elvis "the greatest popular culture figure of our century."

The Elvis who in later years was addicted to and oftentimes incapacitated by a smorgasbord of prescription drugs is not the Elvis who is being celebrated at Ole Miss this week. "We're getting the worshipful perspective here," Seattle's Jack Estes mutters to me after a lecture one morning in which Elvis is limned as an agent of racial integration.

In fact, many African-Americans remember Elvis as much for a racially disparaging remark he is said to have made as for his music. One biography, *Last Train to Memphis,* reports the star denied making the comment and said he attended black churches as a youth. But in *Elvis: What Happened?,* a former employee quotes him using a racial epithet. Thus, rumors of bias persist.

A little grandiloquence is allowed

Some of the shadings of the Elvis story that are presented at the conference veer more toward the indecipherable than the worshipful. (That, of course, is how one can tell one is at an academic conference.) I learn that, deconstructed, some Elvis songs yield subliminal anti-colonial messages, and that the spoken passages in Elvis' later ballads are Hamletian soliloquies. The conference-goers, a good-humored lot, seem not to mind a little grandiloquence. But there are limits. When a speaker one morning gets rolling on the "verbal signifiers of rhythm-induced sexualities," Scott Rohde joins me in slipping out.

"Too heavy, man," Rohde tells me in a voice that booms down the block. A bodybuilder and restaurant owner from Florida, Rohde, 41, is probably the most hard-core Elvis fan in attendance. He wears mutton-chop sideburns and a gold chain and carries a seat cushion that's embroidered with the words, "I Want You, I Need You, I Love You." He saw the King perform live 52 times. Unlike most of the fans here, Rohde prefers the Vegas Elvis, whom he once saw perform five times in three days. "You see the dinner show, you get right back in line for the midnight show. It was worth it just to see what jumpsuit he was going to wear that night." When Elvis died, Rohde locked himself in his apartment for three days. This week, he's clearly enjoying the discussions of his idol's musical influences, but the sociology he can do without. "Hey, Elvis was Elvis," he says, shaking his head. "He sang songs because he liked them and wanted to sing them, plain and simple."

I should confess here that I'm not an Elvis fan. I came of age with the Beatles; Elvis' music was simply part of the background sound of my childhood. I never saw any of his 31 movies. The spontaneous sound of the early

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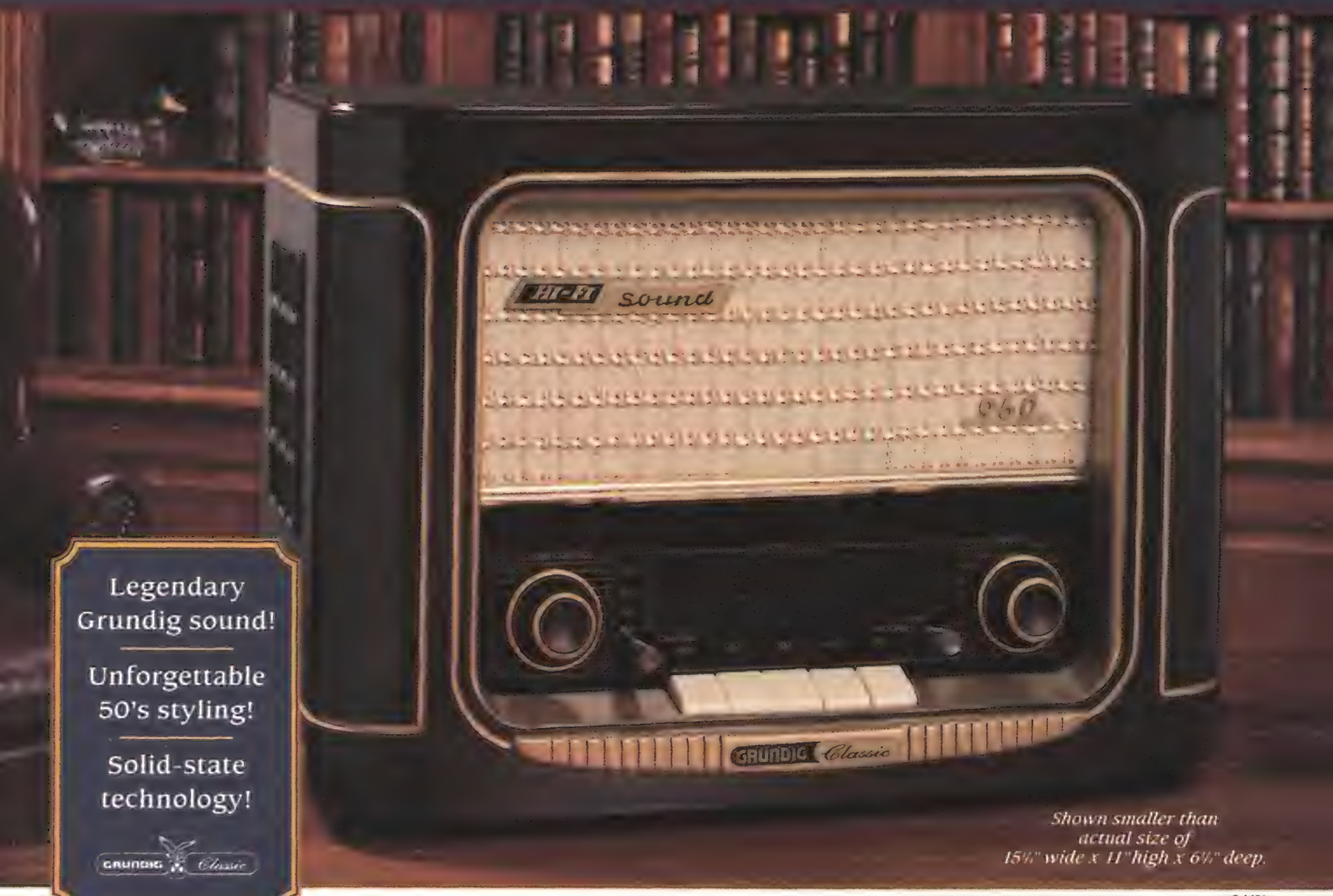

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Gladys and Child by Ceci Smith, a painting depicting Elvis and his mother, was exhibited at the conference.

Sun Records sessions appeals to me, but the Vegas Elvis I find hopelessly tacky. Still, I'm well aware that without Elvis there would have been no Beatles. Elvis, to me, gave youth culture its attitude—a way of talking, dressing, flirting, rocking. On reflection, I wouldn't even quibble with Leonard Bernstein's assessment of Elvis as "the greatest cultural force in the 20th century"—he wasn't saying he *liked* him. And the conference leaves me with no doubt about how potent a force Elvis still is.

The outpouring of artwork alone that Elvis has inspired is fascinating—everything from folk art to computer printouts on black velvet. For sheer size and wackiness, nothing can match a 30,000-piece roving installation called the "Traveling Panoramic Encyclopedia of Everything Elvis." Its creator, an artist from Georgia named Joni Mabe, can't bring the whole assemblage to the conference, so she's been invited to show slides. "The first time I went to Graceland, I couldn't afford the souvenirs, so I went back home and started making my own Elvis objects," she explains in a twangy, deadpan voice. As she speaks, we behold Elvis matchboxes, Elvis clocks, an Elvis prayer rug made of glitter and human hair, and a collage called *Swamp-Thing Elvis.* One construction contains an alleged lock of Elvis' hair. Another features a vial with a toenail Mabe found in the shag carpeting at Graceland during a tour in 1983. "I thought that maybe it was one of Elvis' toenails, but I'm not 100 percent sure," she says. Someone in the audience suggests she run a DNA check on the hair and the toenail to see if they match, and Mabe nods her head.

The conference winds up on Friday with a motorcade to Memphis and Graceland. The weekend marks the beginning of Tribute Week, an annual rite commemorating Elvis' death on August 16, 1977. Known to nonobservant Memphians as "Death Week," it's taken on some of the flavor of Mardi Gras. The zoo is offering discounts all week to anyone wearing Elvis attire. Elvis impersonators are booked at Memphis hotels. The *Commercial Appeal* newspaper even offers tips on doing your own Hound Dog Windmill (your right arm sweeps in a circle as your hips pivot in the opposite direction).

Before paying our respects at Graceland, we gather at a downtown restaurant for more barbecue, the requisite medley of Elvis' ten biggest hits blasting from the loudspeakers. After lunch, Jack Soden, CEO of Elvis Presley Enterprises Inc., gives us the rundown on Elvis as a business property. The company, owned by Elvis' only child, Lisa Marie, manages both Graceland and the rights to the name "Elvis." Soden is an almost comically upbeat salesman who stammers with excitement as he talks about the relentless growth of his business. With nearly 700,000 visitors each year, the mansion ranks near the top among the most frequently visited historic homes in the country. The number of visitors to Graceland has increased every year since it opened in 1982, and last year jumped 17 percent. "I wish I could take credit for that on behalf of our marketing staff, but I know I can't," Soden says. "The Elvis Presley phenomenon has a life of its own." New plans for the Elvis trademark are in the making, he tells us, including a possible Elvis project in Las Vegas. And more: "The theme-restaurant thing is just going bananas," he says excitedly. "We're looking at a diner concept in Asia."

This is a long way from Tupelo. Forty years ago, Elvis Presley was vilified as nauseating, amateurish and obscene. Today, he's a staple of the Disney Channel, not to mention a brand name that's recognized instantly around the world. One hundred years from now, is canonization so farfetched? Janice Gregory, coauthor with her husband, Neal, of *When Elvis Died,* suggests a way to gauge the King's progress in that regard. "The true test of when Elvis has reached religious stature," she says, citing a *Washington Post* editorial, "will be when a citizens' group tries to ban the playing of 'Don't Be Cruel' at a high school graduation."

Graceland visitor is reflected in glass covering life-size Elvis; Presley commissioned the painting in 1969.

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QUALITY IS JOB 1.SM

By James R. Chiles

Congress couldn't have been *this* bad, or could it?

If you think things are pretty messy on Capitol Hill today, just take a look at what was going on up there a century and a half ago

When Charles Dickens visited the U.S. Congress in 1842, he found "some men of high character and great abilities." But many, the noted English novelist reported, practiced "despicable trickery at elections; underhanded tamperings with public officers; cowardly attacks upon opponents," not to mention "aidings and abettings of every bad inclination in the popular mind."

During his visit, Dickens heard one Congressman threaten to cut another's throat, and was surprised that the House did nothing to discipline the scoundrel. "There he sat among them," the stunned novelist wrote, "not crushed by the general feeling of the assembly—but as good a man as any."

Members of the House, Dickens also noted, sat at their desks with their feet propped up, lavishly spitting tobacco juice. "Both houses are handsomely carpeted; but the state to which these carpets are reduced by the universal disregard of the spittoon . . . do not admit of being described." Strangers, he continued, should be wary of picking up any article from the floor "with an ungloved hand."

Anyone inclined to dismiss Dickens as a snobbish and sarcastic Briton with heightened powers of description need only consult other local sources. In 1837, according to a contemporary newspaper reporter, you could easily slip on the "disgusting compound of tobacco juice, wafers and sand" that coated the floor of the House of Representatives. Young messengers often slid down the aisles on the loose papers that accumulated there. "Not all the soap and scrubbing-brushes in christendom," the reporter wrote of the chamber, "would make it fit for a peasant's hut."

It was at about this time, too, that the House found itself reduced to fining members who missed roll call. To avoid the $2 fine, some Honorable Members were not above scooting in through open windows or sliding down columns from the gallery.

Indeed, voters who share the current dissatisfaction with the goings-on of the people's representatives on Capitol Hill, or deplore the current levels of partisanship in American politics, should take a measure of comfort from a look at how things used to be in the good old days.

In the first half of the 19th century, members of Congress, untroubled by the relentless gaze of C-SPAN, were not under the direct scrutiny of the public eye. Like many Americans in a rough-and-tumble new nation, they indulged in bad manners, unruly behavior and sometimes outright violence. Long before Representative Preston Brooks of South Carolina beat Senator Charles Sumner of Massachusetts into unconsciousness in a celebrated 1856 dispute over slavery, Congressmen regularly attacked one another—with words and, on occasion, weapons.

There was much to get violent about. Every time a new territory clamored for statehood, it threatened the balance of Congressional power between the various rival regions (East versus West, North versus South) and eventually between slave states and free states. Congressmen battled tooth and nail over tariffs—the federal government's main source of income—which helped the commercial Northeast at the expense of the agricultural South, and gave more power to the federal government than the states' rights followers of Thomas Jefferson thought tolerable.

Long before the Civil War, South Carolina talked hotly of nullifying the Constitution on this issue, even of outright secession from the Union. The question of whether or not to have a national bank sundered state from state and brother from brother at a time when many Americans still thought lending money at interest was not only unchristian but akin to theft. And farmers (circa 1830, about 70 percent of the population) just knew that people who didn't plant and harvest—that is, urban stockjobbers and Northern moneymen—were not to be trusted.

A good deal of Congressional exacerbation had to do with conditions in the nation's new capital, a muggy, barren spot regarded for years as a provincial and unhealthy outpost by the diplomatic corps of European na-

Congressmen at work in the early 19th century: many, Charles Dickens related, practiced "cowardly attacks upon opponents" and "despicable trickery at elections."

Illustrations by Peter de Sève

"In each chamber there are two lodgers—This is very inconvenient. 'Tis difficult to obtain an hour's quiet. . . . your papers are too much exposed or you must constantly be on your guard."

tions. For decades the capital city seemed raw and only half-built, with weed-choked bare lots and streets of yellow clay. To keep carriages from foundering in heavy rains, logs had to be thrown into the deepest mudholes of Washington's unpaved roads. One Representative who ventured out at night for a social visit in 1818 complained that he slipped into gutters, fell over dirt piles and tripped over bricks and barrels—because the District of Columbia, then as now, fiscally feckless, hadn't supplied the streetlamps with fuel. Hogs got to be such a nuisance that in 1828 the police issued a stern warning: any porker found running loose in the streets would be arrested—and promptly sold.

Like their modern-day counterparts, early Congressmen had to wrangle together and somehow pass the expanding nation's laws. But their lifestyles, like those of most Americans, were totally different from today's. Forget about weekend jaunts home to campaign or see friends. Until the completion of the Erie Canal in 1825 and the arrival of rail connections in the mid-1830s, members rarely got home at all during the session, which began in December and lasted from four to six months. The journey from Washington to Boston took 11 days by coach in 1807, and sometimes coaches could not get through at all. Until the early 1850s, most of the members did not bring their wives and families to Washington.

Today, staff for 535 Senators and Representatives runs to about 18,000 people, with an annual payroll of more than $1 billion. But for the first century of Congress, our public servants had little or no personal staff to help draft legislation or answer letters. And they did receive letters; in those days citizens took their right of petition seriously. During a two-year term starting in 1817, Delegate John Scott from the Territory of Missouri received more than 1,000 petitions on subjects ranging from widows' woes to patent applications to damage claims for property destroyed during Indian raids. At the time, the entire population of Missouri was something like 65,000.

Without staff, Congressmen had no need for the suites of offices their successors have today. In fact,

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most had no offices at all. They spent their days at assigned desks in the House or Senate chamber. At night, there was still no privacy from politically hostile colleagues. Until the mid-1840s, most Congressmen lived together in boardinghouses and were sometimes obliged to bunk two to a room.

Finding a boardinghouse was a Congressman's first job on arriving in Washington. Dozens of these establishments were advertised in city papers like the *National Intelligencer.* ("Mrs. Cottringer, in Ninth street a few doors South of E street," read an 1831 notice, "can accommodate a Mess of Members of Congress, or other strangers visiting the City.")

The works—for eight bucks a week

Congressional boardinghouses clustered in three places around town. Some of the oldest were in Georgetown, a long, bumpy carriage ride from the Capitol, but already well established by 1800, the year when the capital was moved from Philadelphia to the raw, new city of Washington. Another clutch of House and Senate hostelries sat back on Capitol Hill, where today's Supreme Court and Library of Congress now stand. A third group ranged itself along the base of the Hill, facing what are now the Mall and the Washington Monument.

In 1835, $8—a full day's pay for House members—bought Representative John Fairfield of Maine a room and his meals for a week, fuel for his fireplace and two spermaceti candles to read by. Meals were substantial: Fairfield commonly sat down to a breakfast of coffee, beefsteak, mutton, sausage, hominy and buckwheat cakes, corncakes or biscuits. At meals, Congressmen sat like schoolboys at assigned places, with the proprietor at the head of the table.

Boarders slept and lived upstairs but often gathered, as at an English inn, in first-floor common rooms. Such gatherings were not always congenial. "At Capt. Coyle's . . . there are 16 of us," Senator William Plumer of New Hampshire complained to his diary in 1806. "This is too many—We have too much noise. . . . In each chamber there are two lodgers—This is very inconvenient. 'Tis difficult to obtain an hour's quiet. . . . your papers are too much exposed or you must constantly be on your guard. I believe I have kept mine secret."

A Republican allied with President Jefferson (who had lived in a boardinghouse himself when he was Washington's Vice President), poor Plumer found himself outnumbered by Federalist housemates who opposed Jefferson's attempts to limit federal power: hence his care in guarding his papers. "I dare not invite a gentleman to call upon me whose politics are different," he wrote, "lest these violent inmates should treat him with rudeness & insult." Plumer once asked his Federalist housemates to notify him before they invited a certain Federalist to dinner, because, he said, he couldn't stand to eat with the gentleman.

A few years earlier, at a dinner in Miss Shields' boardinghouse, Representative John Randolph of Virginia, another Jeffersonian, and Representative Willis Alston, a Federalist from North Carolina, ended an evening of verbal insult by throwing glassware at each other. They managed not to interact for the next six years—until Alston insulted Randolph one day on their way out of session. Randolph whacked Alston on the head with his riding crop, drawing blood, and paid a fine of $20 for the privilege.

If tempers did not noticeably improve, eventually the supply of Congressional boardinghouses did, enough so that single bedrooms became the norm. Congressmen also got better at sorting themselves out into more or less congenial groups. Over the years, predominantly Republican or Federalist houses evolved, as well as houses that catered to highly partisan political tastes. Quite early, there was a "War Hawks" boardinghouse (for supporters of the War of 1812) and, starting in the

Capital's ambience prompted a police warning in 1828: "Any porker found running loose will be arrested."

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"Senators rounded up a drunken member, usually absent from important sessions, to help carry the vote."

1830s, a hostelry known as "Abolition House" for those opposing slavery (who, for years, tended to be dismissed as crackpots and political madmen).

Of course, parties and political allegiances evolved over time. A Representative who started out in 1800 as a Federalist conceivably might have joined Madison and Jefferson's new "Republican" Party (which later became the Democratic Party) after the Federalist Party petered out in 1814, supported Andrew Jackson as a Democrat in the late 1820s, and finally bolted to the Whigs after Jackson destroyed the Bank of the United States by removing federal funds from it in 1833. But whatever his political views, he could still find a "mess" of boarders somewhere who agreed with him.

Thus organized, the boardinghouses became the political "war rooms" of the day. Following a plan hatched in the boardinghouse known as the "war mess," a number of War Hawks burst into the House one night in June 1812. A group of Federalists had held the floor nonstop for three days, trying to fend off a vote on the declaration of war against Britain. The intruders grabbed brass spittoons from the floor, banging on the metal and flinging them around the room. The Federalist speaker, startled, abruptly shut up and sat down. A War Hawk instantly moved to cut off debate, and the fateful measure shot through the House like the proverbial hot knife through butter.

When the declaration came up for a vote in the Senate on June 18, the War Hawks apparently rounded up a drunken member, usually absent from important sessions, to help carry the vote. The nation was at war. When the news reached the war mess on New Jersey Avenue, 30-year-old Representative John C. Calhoun of South Carolina—often described as somber and humorless—reportedly threw his arms around the neck of Speaker of the House Henry Clay and joined his comrades in a Shawnee war dance around the boardinghouse table. ("I don't like Henry Clay," Calhoun once said. "He is a bad man, an imposter, a creator of wicked schemes. I wouldn't speak to him, but, by God, I love him.")

The camaraderie of boardinghouse life mattered enormously, too, because for decades there were few respectable things to do in Washington at night. Social life picked up over the years—and so did the social reputation of politicians, particularly members of the House, who were initially snubbed as yokels by such few Washington hostesses as there were. (Senators, always more staid than Congressmen, got a bit more respect.) But for years, by far the biggest nighttime diversion was cards—whist, faro and brag—played at those boardinghouses whose rules permitted it. One unhappy Congressman reported losing $3,500—more than a year's salary circa 1856—in a single evening.

Whenever they really got fed up, Congressmen agitated to move the nation's capital (it had been moved twice already), claiming that anywhere would be better than Washington in summer. During an early debate on the question of moving the capital, when citizens opposing the move turned up in the gallery, Senator James Jackson of Georgia threatened to call in the military and have them all shot. Threats of violence, however, were usually directed at other Congressmen. The House, particularly, was rough and raucous. The chamber's high, elliptical ceiling echoed and amplified every stray sound, from mild chatter and rustling newspapers to shouts. With all the noise, it was said at the time, no more than one-third of the members had any idea what was going on. With little chance, compared with today, of being instantly heard, either by colleagues or constituents, some members saw no need to curb their language. According to Augustus Foster, aide to England's minister to the United States, to "judge from their Congress, one should suppose the nation to be the most blackguard society that was ever brought together."

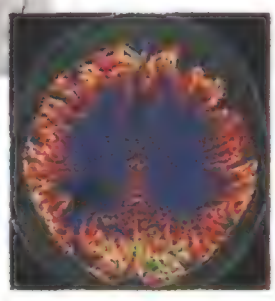
Whether they acted well or badly, Congressmen didn't expect to stay around very long. There were no term limits, but voters, then as now, were a fickle lot. More important, before the great increase in federal power

James Chiles is a frequent contributor. His most recent article (July 1994) dealt with the arduous digging of New York City's latest water tunnel.

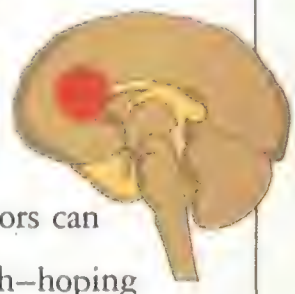
ONCE A STROKE OCCURS, THE DAMAGE IS DONE. DOES IT HAVE TO BE?

New medicines currently being tested may be able to stop destruction of brain cells in the crucial hours after a stroke.

Scientists from pharmaceutical research companies discover more than 9 out of 10 new drugs.

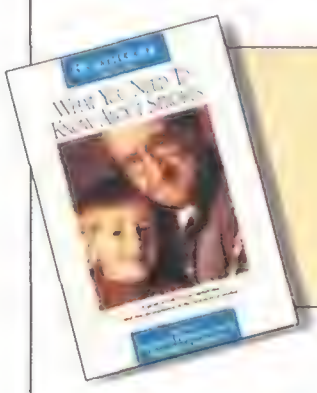


When a person suffers a stroke, reduced blood flow damages part of the brain. Then a powerful chain of chemical reactions occurs. Called the *glutamate cascade*, it rains terrible destruction down on brain cells in the initial days after a stroke, causing further damage. As glutamate levels build, excess calcium and a toxic form of oxygen destroy brain cells. Today, doctors can only stand by and watch—hoping that the cascade will end before massive damage occurs. But there is hope. Pharmaceutical company researchers are currently developing 19 new drugs that could help reduce the terrible damage to the brain that occurs after a stroke.



p r e v e n t i o n

Anyone can have a stroke. But age, gender, race and medical history play a role. Some people also experience the following warning signs: temporary weakness or numbness on one side of the body, blurry or dim vision in one eye, a sudden, severe headache, or speech difficulty. Seek immediate medical help if you have any of these symptoms. Fortunately, there are things that you can do to reduce your risk of a stroke: Quit smoking • Exercise regularly • Maintain a low cholesterol diet • Limit alcohol.



For a free copy of "What You Need To Know About Strokes," please call us toll-free: 1-800-862-5110 or visit us on the Internet: http://www.phrma.org

America's Pharmaceutical Research Companies

that set in after FDR and World War II, much of the political action was back in the state capitals. During the first four decades of Congress' existence, 41 percent of the House, on average, dropped out every two years.

Even so, both houses had their share of memorable and often contentious characters, some short-run, many very long-run indeed. A relative short-runner was Davy Crockett, "fresh from the backwoods, half-horse, half-alligator," who served as Representative from Tennessee for three terms. Starting in 1827, Crockett made quite an impression, but he never managed to pass the bill he cared about, opening government land in Tennessee to poor settlers. After losing his seat in 1835 Crockett told voters they could all go to hell. For his part, he was going to Texas (where he died—at the Alamo—within a year).

South Carolina's John C. Calhoun had been in the House for five years when, in 1816, Congress voted to give itself a substantial pay increase. The public was outraged, so the next year the measure was reversed. Calhoun, who predicted that men of high caliber would no longer seek Congressional office if salaries were not raised to equal or exceed those of Presidential appointees, resigned—to take on the higher-paying job of Secretary of War. Eventually, though, he returned to Congress, becoming one of those men who spent entire careers—or significant chunks of them—on Capitol Hill. After serving as Vice President from 1825 to 1832 under both John Quincy Adams and Andrew Jackson, Calhoun went to the Senate, and remained there, minus one year as Secretary of State to President John Tyler, until his death in 1850.

Daniel Webster, the renowned legal orator who could outwit the Devil himself, chose not to run in 1816. Seven years later, he was reelected to the House, went on to a seat in the Senate, where—despite being famously eloquent on the subjects of the sacredness of the Union and the need for abolition—he remained, off and on (mostly on), until 1850.

Calhoun's and Webster's careers resemble those of today's Congressional stars—rising from the House to the Senate or positions in the Cabinet—but their careers were unusual for their time. Today, most Senators voted out of office would sooner retire from politics than run for a seat in the lower house. But back then, the House of Representatives was where the real political power in Washington lay, and there were no high-paying lobbying firms, consulting groups or think tanks to absorb out-of-work politicians.

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There was a "War Hawks" boardinghouse favoring the War of 1812 and, later, one called "Abolition House."

A spectacular example was John Quincy Adams, who got himself elected to the House after leaving the Presidency in 1829. Adams, a great public servant and defender of the citizen's right of petition, was appalled when, in 1836, Congress imposed a ban on the reading of abolitionist petitions—or any petition regarding slavery—in session. In protest, for nine years running, Adams opened each new session by reading aloud petitions he had received on the issue. "Nothing daunts him," said an observer at the time; "the House may ring with the cries of 'Order, order!'—unmoved, contemptuous, he stands amid the tempest, and, like an oak that knows his gnarled and knotted strength, stretches his arms forth, and defies the blast." Adams' dramatic brand of civil disobedience led to the repeal of the gag rule in 1844.

John Randolph of Virginia, another career Congressman, also took full advantage of his freedom of speech. Tall and pale, with black hair, Randolph dressed in buckskin riding clothes, carried a riding crop and often strode into the House with one or two hunting dogs at heel. But what truly distinguished him was his savage wit. He had a habit of pointing an index finger like grim Death while hurling remarks at adversaries. He once described a colleague as "the most contemptible and degraded of beings, whom no man ought to touch, unless with a pair of tongs."

First elected to Congress in 1799, Randolph was a brilliant orator, a strong defender of states' rights and a political maverick, holding seats in the House or Senate for most of the years until his death in 1833. Eventually, his language grew so sarcastic and abusive that many Senators simply left the chamber when he was speaking.

The one man in Congress who could control Randolph, it was believed, was Henry Clay of Kentucky, the "Western Star," who was elected Speaker by his colleagues on his very first day in the House in 1811. He served in that office for six terms—the longest tenure as Speaker of the House in the 19th century—his popularity due in part to his ability to squelch Randolph. The Clay-Randolph feud began in 1812, when Clay refused to entertain Randolph's resolution against the declaration of war. In 1820, after the House approved the Missouri Compromise—which temporarily helped maintain a balance between slave and free states—Clay again thwarted Randolph, this time refusing his motion to reconsider the bill. Not that Clay thought the action would change the vote—he simply didn't want to give Randolph the satisfaction of seeming to control the business of the House. At every turn, the two men butted heads. In 1826, they finally faced off in a duel.

Randolph—who despised Clay, but also secretly admired him—accepted Clay's challenge, declaring that he preferred "to be killed by Clay to any other death." But after two volleys, with the only injury a hole drilled through Randolph's flowing white coat, the two shook hands. ("You owe me a coat, Mr. Clay," Randolph said, to which Clay—then the Secretary of State—replied, "I am glad the debt is no greater.") It was, according to Senator Thomas Hart Benton (who had taken part in a few duels himself), "about the last high-toned duel that I have witnessed."

We think of duels as being fought with pistols or swords, but at least one Congressional duel was fought with rifles at a distance of 100 yards. After this particularly tragic encounter, dueling was outlawed in the capital. In 1838 Jonathan Cilley, a freshman Democratic Representative from Maine, made some comments in session that offended another first-termer, Whig William Graves of Kentucky. As was the custom, Graves challenged Cilley to a duel. The whole matter might have ended with everyone's honor and health intact, had it not been for a Tyler Democrat named Henry A. Wise, who represented the state of Virginia.

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A fiery defender of slavery, Wise—who later, as governor of Virginia, would have John Brown hanged—was, by all accounts, an angry, abrasive fellow. According to Benjamin Brown French, the Clerk of the House, Wise had "shot his former friend, Coke, through the arm, in a duel. His wife and brother have died, his house has been burned, he has been either a principal, or second, in three duels, in each of which blood has been shed."

Wise was even more riled up by Cilley's comments than was Representative Graves, and offered to serve as second to Graves, encouraging him to "kill that damned Yankee." On February 24, 1838, the two contestants met on the old dueling grounds in nearby Bladensburg, Maryland. Each took two shots at a distance of 100 yards. Both missed. That would have satisfied honor had not Wise insisted the duel continue. On the next round, Graves killed Cilley.

Congress, and the public, were shocked. The newspapers made much of Wise's murderous role. The next year, Congress passed a law banning the giving, delivering or accepting of a challenge to a duel in the District of Columbia.

Over the next ten years, Congress continued to lose its insularity. In 1848 a telegraphic network called the Associated Press began flashing accounts to newspapers all over the Eastern Seaboard. A few years later, the new Pitman system of speed stenography allowed Capitol Hill reporters to capture every word of Congressional debate. Transport and accommodations improved. Wives and families came to Washington, and a whole new, somewhat more decorous, social life expanded. The boarding-house life was fading. By 1850, less than half of the Senators still lodged in the old communal fashion.

Despite all the altercations, the early Congresses managed to cover a considerable amount of legislative ground, ranging from what paintings should hang in the Rotunda to a tariff on imported pasta to the construction of a national road (from Maryland to Illinois) to the settlement of international boundary disputes with Spain and Britain. Congress also brought increasing order to its dealings in the form of a growing body of precedents, committees and subcommittees—during a period when the country, and its Congress, more than doubled in size and complexity.

Yet the ire of the men Dickens called "desperate adventurers" did not fade, especially as the struggle over the ratio of new slave states to free states began to burn hotter still. During debates on the Compromise of 1850—through which Congress hoped to avoid civil war—Senator Thomas Hart Benton of Missouri, who favored compromise, advanced in a rage on Senator Henry S. Foote of Mississippi. Foote pulled out a big pistol. Benton, safely restrained by his colleagues, shouted, "Let him fire! . . . I have no pistol! I disdain to carry arms! Stand out of the way, and let the assassin fire!" One Senator said that during the stressful 1850s the only members not carrying a knife and a revolver were those carrying two revolvers.

The Compromise—an attempt to resolve disputes over slavery in the Western territories lately gained in the Mexican War—allowed Congress to avoid the issue for several years, but in the end, it did not work. Six years after its passage, Representative Brooks brutally beat abolitionist Senator Sumner. It took three and a half years for Sumner to recover fully, and by then, the country was on the brink of civil war.

"We think of duels as being fought with pistols or swords, but one Congressional duel involved rifles. In 1839 Congress finally banned the delivering or accepting of a challenge in the District of Columbia."

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By Richard Wolkomir

Bringing ancient ways to our farmers' fields

From her research plots at Cornell, scientist Jane Mt. Pleasant wants to take agriculture back to its Native American roots—and into the future

"That's Iroquois white-flour corn coming up," says Jane Mt. Pleasant, pointing to sprouts in her experimental garden, which is a disreputable mess.

Mt. Pleasant is a PhD-carrying Cornell University agronomist. But any 4-H kid would tell you her garden on a New York State hilltop is "gross." Mounds hump up, ankle high. Between the mounds teem dandelions, foxtail, thistles, nettles, buttercups. Last year's stalks and leaves lie decomposing. Poking up helter-skelter from each mound are assorted seedlings.

"Pole beans," says Mt. Pleasant, pointing to a sprig. It rubs shoulders with an infant cornstalk. With her muddy sneaker, she nudges a third set of leaves. "Pumpkin," she says. "Maize, beans, squash—the Iroquois 'three sisters.'"

Photographs by David Harp

Mt. Pleasant is Iroquois herself. She is small, and misleadingly quiet for someone out to change the way Americans farm. She used to be a New York City taxi driver, crusading against corruption. After a career change, she is now on a scientific crusade: she aims to set farming back about 800 years by adapting Iroquois methods to the modern world. "We are faced with a rising population and finite resources—agriculture has to change," she asserts.

Mt. Pleasant is not alone. As Tom Scott, a senior Cornell soil scientist, puts it: "We had euphoria in the '50s and '60s, when it seemed agriculture could do no wrong." Agronomists deployed hybrids, fertilizers, herbicides and pesticides. Yields skyrocketed. But then the heady increases dwindled. "And we began to see that our techniques were causing soil erosion and pollution," Scott says. "We did a good thing, but we were not careful enough."

Jane Mt. Pleasant's Iroquois study, he says, is part of the fixing process. "We've underestimated the knowledge acquired by indigenous peoples," says Scott. "Their systems may be labor-intensive, but there's a lot of knowledge there, and we need to evaluate what they were doing." That means keeping ancient ways alive. "Only a few Iroquois farmers still use the old seeds and the old methods, and Jane is making sure those indigenous seeds and techniques are not lost," Scott adds.

Frederick Gaffney, the U.S. Department of Agriculture's conservation agronomist for New York, says that Mt. Pleasant's research is already paying off. She has, for instance, given farmers a better way to grow soil-protecting "cover crops." "Jane's research is opening a window for us," says Gaffney.

Central New York's forest-patched farmlands look fit this hot June morning. Even the sultry air seems greenish with chlorophyll. But these fields, like farmlands nationwide, are invisibly afflicted.

"Through the 1930s and '40s, corn yields were the same as the Iroquois corn yields," says Mt. Pleasant. "It was after World War II that hybrid crops, fertilizers and pesticides sent productivity way up—there's no doubt we can grow a lot of food, but it's at a cost."

Nitrates from excessive use of fertilizers seep into the water table. Plowed soil erodes in the wind and rain. Hybrid strains often need lots of herbicides. And modern farmers typically plant just a single high-yield crop. Such monocultures can be sitting ducks for epidemics. In 1970, Southern corn leaf blight killed 15 percent of the U.S. corn crop—700 million bushels. "That frightened plant breeders around the world because nobody had realized how fragile the monoculture system was,"

Author Richard Wolkomir, whose Vermont garden has been pillaged by snowshoe hares and raccoons, harvests his maize at a nearby roadside farm stand.

explains Mt. Pleasant. "The breeders still talk about it all the time." The blight was a warning: no stability without diversity. Meanwhile, a key fertilizer ingredient, phosphates, is running out. "In 50 years, phosphates will be gone," Mt. Pleasant says. She is probing Iroquois methods for adaptable ideas: "Once I got involved in the research, I became fascinated with corn—we'd travel, and I'd want to look at the corn." Her zeal for corn came late. She grew up in Syracuse, New York, and its suburbs. Her only connection to Indian agriculture, she comments, "was that my father loved corn soup." Her mother, of European ancestry, was a nurse. Her father, from a Tuscarora reservation near Buffalo, New York, was a factory foreman. Jane studied political science at American University in Washington, D.C. But after one semester, the turmoil of the '60s made college seem "irrelevant." She dropped out and spent eight years driving a New York City cab. She became a corruption-fighting union shop steward. But the allure of being a taxi driver waned, and she began taking night courses

An age-old symbiosis underlies the Native American crop system: "three sisters"—squash, corn and beans—are planted in mounds (opposite); the broad leaves of the pumpkins inhibit weeds; the cornstalk supports pole beans; in turn, these legumes fix corn-nourishing nitrogen into the soil.

in a variety of subjects at City College of New York.

"One day, at the library, my future husband and I looked through a listing of occupations," Mt. Pleasant recalls. "We got to the 'S' section and I saw 'Soil Science'—I'd taken a geology course and I thought, 'I could do that!'"

Cornell accepted her under the American Indian Program, an interdisciplinary offering of courses devoted to the cultures of North American Indians. "I discovered that soil science actually was about agriculture," she says. "I drove tractors, and even though I'd never been a plant person I became really excited." For her doctorate in soil science, from North Carolina State University, she studied farming methods in Peru's Amazon basin. Her husband, also a former college dropout, earned a degree in electrical engineering. In 1987 the couple moved back to Cornell, where Mt. Pleasant joined the faculty, and her husband is now completing a doctorate in applied physics. Besides raising three children, including a boy adopted in Peru, Mt. Pleasant focuses on corn. "It struck me that Indian peoples have been planting corn in New York State for over 800 years. In fact, corn is an Indian invention."

About 7,000 years ago, Mesoamerican farmers—probably in Mexico—crossbred wild grasses, creating a new grain that scientists call Zea mays or maize. As maize diffused to the south and north, aboriginal Luther Burbanks selected seeds from whichever maize plants thrived locally. Their selections led to new strains, adapted to different soils, pests, moisture levels and growing seasons. On Mt. Pleasant's wall, a chart shows 21 types of Indian corn, ranging from splinter-size teosinte, from 5000 B.C., probably the original corn, to Red Starburst, raised by Arizona's Hopi and Zuni, its cob a half-yard long.

"If you stop planting and harvesting corn, it disappears," Mt. Pleasant points out. That is because corn's seeds, the kernels, grow embedded in cobs. They stay pressed together when the cob falls to the ground, inhibiting one another's growth. "Over time, reproduc-

At Cornell University lab, agronomy researcher Bob Burt, using steam-distillation techniques, assays the levels of fertilizer-produced nitrates—a major source of groundwater pollution—from cornfield soil samples.

tion stops," says Mt. Pleasant. "The only reason we have corn today is that for thousands of years humans have selected seeds and planted them."

Jacques Cartier, who explored the St. Lawrence River in 1535, reported seeing large fields of corn around Iroquois villages. Henry Hudson, sailing up the river named for him, saw similar farm towns. Corn was so vital to the six Iroquois nations that Europeans trying to destroy them targeted agriculture. France's Marquis de Denonville fought the Iroquois in 1687 and reported destroying more than a million bushels of corn. In 1779 a Continental Army general, John Sullivan, marched against the Iroquois, Britain's allies, and reported destroying more than 60,000 bushels of corn stored in just one village, Genesee. "Our modern agricultural technology has lasted only 50 years, and it's already showing strains, but Iroquois three-sisters agriculture endured over 400 years," says Mt. Pleasant.

If a field did decline, she explains, the Iroquois abandoned it to trees, letting the soil recharge. In a decade or so, the farmers returned to girdle the trees. After the trees were dead and dry, they burned the field. The ashes became fertilizer.

Men girdled and burned. Women planted. They would insert a few kernels in a hole, then move ahead three feet and plant more kernels. When the corn sprouted, they weeded and mounded up the soil around the growing young cornstalks. These mounds exposed the soil to air, keeping it warmer in spring. And the hills enhanced drainage.

Then the Iroquois "interplanted." Two weeks or so after they planted the corn, in each mound the women also would plant two or three bean seeds. Between the mounds they planted pumpkins or other squash. These "three sisters" worked as a team.

Squash's broad leaves stifled weeds. Corn stalks served the beans as poles. The beans provided fertilizer: bacteria living in bean roots change atmospheric nitrogen into a form that dissolves into soil. Harvesters left the pulled-up bean plants to rot on the ground, enriching the soil with nitrogen.

Iroquois farmers strewed each harvest's debris — roots, stalks, vines, leaves—directly on the mounds. The rotting plants enriched the soil precisely where the Indians would replant in the spring, with no wasted resources or effort. "As a soil scientist, I can look at the Iroquois three-sisters system and see that it was sound," says Mt. Pleasant. "It was a balance between production and soil protection."

The price was lower productivity. Iroquois farms

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yielded 25-40 bushels of corn per acre. Today New York farms average 100 bushels per acre. "We pay less for food than most people in the world, and we can devote less of our land to agriculture," Mt. Pleasant notes. "Also, fewer of us have to be farmers—that's great if you'd rather be a writer or scientist or whatever."

But she says the Iroquois did better than corn-yield figures indicate. They did not, after all, grow just corn. Mt. Pleasant's first year's study, in 1993, revealed that intercropping with beans and pumpkins did not reduce corn yields at all. And when she computed overall calorie production, Iroquois output soared: 4.02 million calories per acre versus 3.44 million calories per acre for corn grown alone. "Now I'm rethinking what it means to be productive," she says.

Iroquois agriculture required more labor, but modern farming has hidden costs: machines, fuel, fertilizers, pesticides, pollution, soil loss. "It's becoming clear," says Mt. Pleasant, "that we have to start looking at productivity over time."

She has already made good use of one important method for dramatically cutting herbicide use. Instead of spraying herbicides across the entire field, the farmer lays down only a ten-inch-wide band along the corn row. Then, the soil between rows is cultivated to prevent weeds from getting out of control.

Judging by requests for information, this herbicide-banding technique especially interests farmers growing "cover crops." Much as the Iroquois grew corn, beans, and squash together, modern farmers, increasingly, are interspersing corn with a secondary crop, like rye grass, that protects the soil from erosion. It also uses up excess fertilizer nitrogen, keeping it out of the water table. Later, the rotting cover crop returns its absorbed nitrogen to the soil to benefit the next corn crop. And it enhances the soil's ability to absorb water.

Mt. Pleasant studies cover crops at Cornell's vast Musgrave Research Farm, beside Cayuga Lake. She is currently testing corn interplanted with rye. "We're looking at the effects on corn yields and weed populations," she explains. "We particularly want to learn if we can minimize the movement of nitrates into the ground water by manipulating cover crops."

She brakes her muddy car, its wipers clacking in a drizzle, beside her Musgrave test plots. "One question is whether we should change the spacing of the corn to accommodate the rye, or whether we should alter the timetable for sowing the rye," Mt. Pleasant says.

Researchers wearing slickers have slanted a string across two rows of corn. A red dot every six inches along the string marks where they will count corn plants, weeds and the residues of last year's crop. They are as-

Engraving from an 1853 treatise on Native American cultures depicts an effective and poison-free method of chasing off predators, especially birds: sentries standing on platforms produced a deafening racket.

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At her field site, Cornell graduate student Jessica Robin applies nutrients to "three sisters" mounds.

sembling a statistical picture of the effects of different spacings and planting times.

Other workers repeatedly penetrate the soil with a probe resembling a pogo stick, taking samples. Later, in the laboratory, they will analyze the samples for nitrates. The aim is to see how much nitrate filters into the soil from inorganic fertilizer, from manure fertilizer, and from leaves and stalks left to rot, Indian-style.

Abruptly Mt. Pleasant tramps into a section where the corn, interplanted with rye, is stunted. "This is very bad!" she declares. As rye decomposes, it releases chemicals that inhibit corn growth, and she suspects those naturally occurring compounds are hurting the corn. "That would mean this kind of rye is a bad choice for no-till fields. It's all leading up to what we'll tell farmers."

When questions first arose about modern high-yield agriculture, she says, many scientists bristled: "They felt it was hysteria over pesticides from the green-sneaker people." Those days are gone. "We may not be on the brink of disaster, but we can't keep using the same practices," she asserts. "There has to be change."

The Department of Agriculture's Frederick Gaffney says Mt. Pleasant is causing change herself. "We didn't know when it was best to plant cover crops, but she's refined the research to the point where we now have good data, and we just published a brochure including her findings to help farmers," he says.

Farmers thought they could sow a cover crop, like rye, only after they harvested their corn. But then the soil is vulnerable to erosion until the rye sprouts. Mt. Pleasant has shown that the rye can be planted when the corn is 8-12 inches high. It grows only a few inches in the corn's shade. But, when the corn is harvested, the rye is already in place, protecting the soil and ready to grow taller in the sunlight.

Mt. Pleasant's discovery saves labor. Farmers can put down the rye seed while they cultivate the corn, doing two jobs in one pass over the fields. "Now we know when to advise people to plant," says Gaffney. "It's still a limited number of farmers who plant cover crops, but that number is increasing."

Agricultural winds are shifting, observes Frederick Magdoff, a University of Vermont agronomist. He is the Northeast Region coordinator for the Department of Agriculture's Sustainable Agriculture Research and Education program. And, he adds, Mt. Pleasant's studies are part of the windshift. "Jane is one of the younger generation of scientists, in their 30s and 40s, who are looking at all sorts of alternative agricultural practices, some new, but some going back thousands of years," Magdoff says. "Cover crops are an example—the Chinese used them, and so did the Romans, and we even used cover crops in the United States at the turn of the century, but the practice fell out of favor." Now, he says, because of pollution and erosion, Mt. Pleasant's cover-crop studies are getting farmers' attention.

But solutions to the conundrum of feeding an exploding world population, without destroying the soil that makes it possible, do not come easily. "Few insects attack the corn, but the beans and pumpkins are a different story," says Mt. Pleasant of her research plots. "Last year we also had tremendous trouble with mice, not to mention raccoons!"

The Iroquois solved that problem: village children served as a pest patrol, chasing away bugs and beasts. It was ecologically correct. But would that technique ever work in the Nintendo Age?

Jane Mt. Pleasant, who has three children of her own, is dubious.

Cornell agronomists collect heirloom corn seeds from Native American farmers to grow and preserve an array of varieties, including (from the left) old-strain blue; Southwest Calico; white-flour; strawberry popcorn.

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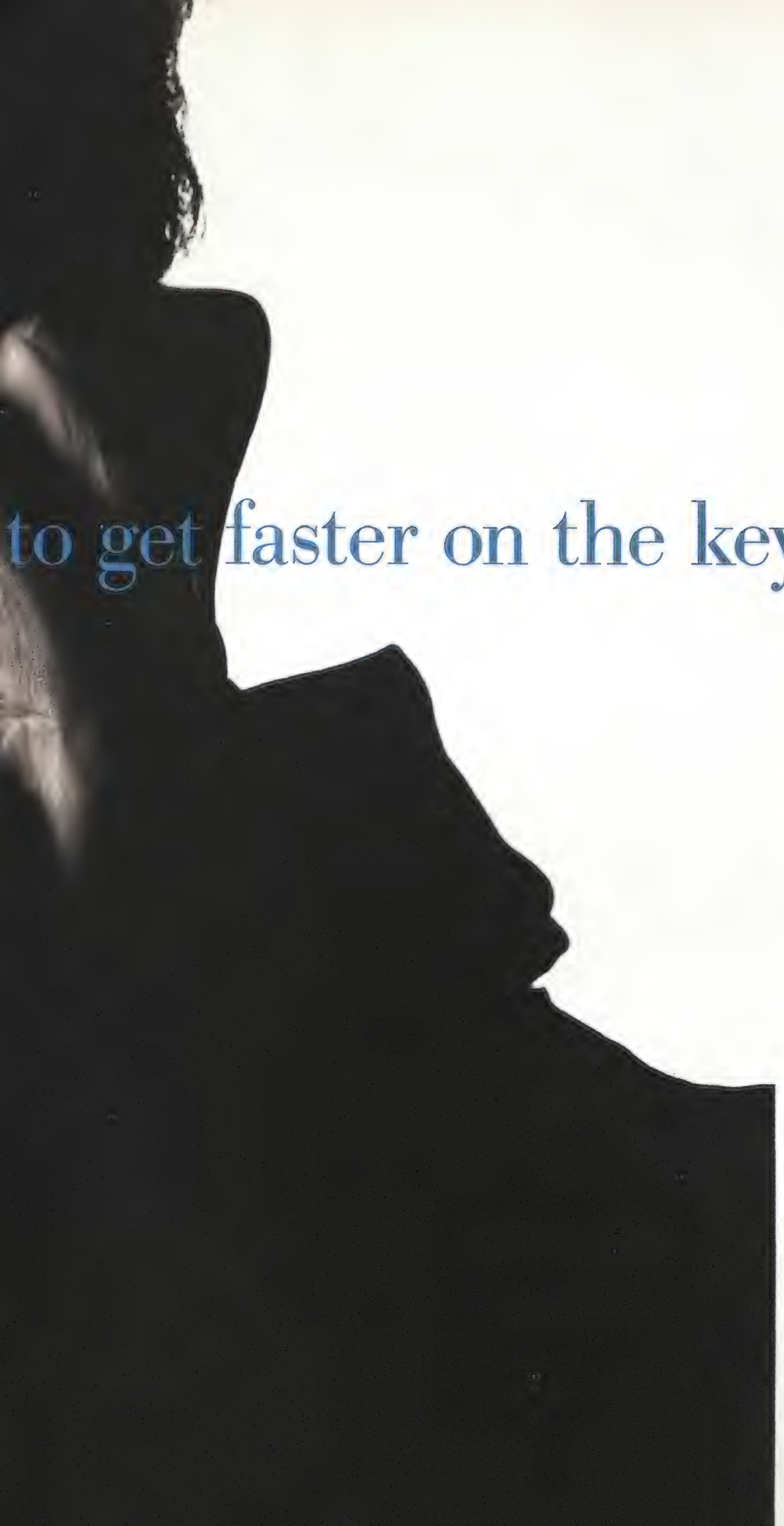

Gavin just finished his epic poem, "The Iceberg, the Walrus and the Fisherman's Elbow."

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By Helen Dudar

Time stands still in the harmonious world of Vermeer

It's a must-see show at the National Gallery of Art; not since 1696 have so many of his paintings been brought together in one place

In this age of the museum blockbuster, when we are inured to exhibitions demanding acres of walls and bottomless pools of energy, it is a sweet irony that possibly the choicest show of the season has just 21 paintings.

In a small way, it is a large event: these are paintings from the hand and eye of the incomparable Johannes Vermeer of Delft, and they represent more than half of what we know—or the experts accept—of his life's work. There have not been so many Vermeers assembled in one place since 1696, when one family's collection of 21 of his works was auctioned off in Amsterdam.

This year they will be found in the National Gallery of Art in Washington, D.C. from November 12 until February 11, 1996; then the exhibition will move on to the Netherlands, where it will remain in the Royal Cabinet of Paintings Mauritshuis in The Hague from March 1 to June 2. The show was organized by Arthur K. Wheelock jr., the National Gallery's curator of northern Baroque painting, and Frederik J. Duparc, director of the Mauritshuis. It is sponsored in Washington by United Technologies Corporation. The exhaustive catalog is being published by the National Gallery with the Mauritshuis, and distributed by Yale University Press.

When we think of Vermeer, those of us who know his work incompletely are likely to summon up images of his solitary women, hypnotically serene figures caught in some private act of concentration and oblivious to the observer, fixed forever on canvas: *Woman in Blue Reading a Letter* (p. 114), perhaps, or *Woman Holding a Balance.*

One has only to see a single Vermeer figure of a woman in a Dutch museum gallery, surrounded by works of the artist's 17th-century peers—Pieter de Hooch and Jan Steen and Gerard ter Borch—to realize how far outside the fashions of his day he stood. He lived and worked in the golden age of Dutch painting, a time when much of the art memorialized and moralized over the daily lives of the monied merchant class. They are good-natured, busy, noisy paintings of domestic joys. Big families assemble around tables heaped with food; dogs frisk, musicians play; adults smoke and drink and mischievously allow small children to sample both pleasures. While in a painting nearby, dwarfed by the surrounding imagery yet larger than life, stands that Vermeer figure in blue, bathed in the cool northern light filtered through an unseen window, totally absorbed by a small sheet of paper.

We will be encountering her and other luminous images in Washington. Still, the coup of the show is the presence of *View of Delft* (p. 112), the only full-scale Vermeer cityscape we have, and a piece that Wheelock, a leading authority on the artist, considers "one of the great masterpieces in the history of art." The picture has never before left Europe. It is crucial to experiencing Vermeer's interests and work, and without it, he says, there could have been no exhibition. Serious questions had to be dealt with. Was it sturdy enough to travel? Could it be cleaned? At one point, a few years ago, a committee of Vermeer experts from a half-dozen countries assembled at the Mauritshuis to examine the painting, study x-rays, confer, argue and, finally, conclude that restoration work and shipping would cause no damage.

Without its old, yellowed coats of shellac and varnish, shimmering in the glow of an unseen sun, *View of Delft* is a kind of architectural icon, the city as a hallowed place. We know that people live there because Vermeer has scattered a few small, shadowy figures on the riverbank facing the town, but this is his celebration of bricks, walls, towers, spires and rust-red roofs, the urban fortress that offered him shelter and purpose.

Among those who have celebrated *View of Delft* was, famously, Marcel Proust, who first encountered it in the Mauritshuis in 1902 and knew he "had seen the most beautiful picture in the world." He loved the painting and was transfixed by one small segment of it. On the right side of the scene, just to the left of a pair of towers, sunlight floods a fragment of a building: the "little patch of yellow wall" known even to those Proust addicts who don't know the painting. Proust's passion for the picture was bestowed on a character in *Remembrance of Things Past,* the novelist Bergotte, who, while admir-

Young Woman with a Water Pitcher is among 21 works in the exhibit—from a total oeuvre of only about 35.

Metropolitan Museum of Art

Vermeer's one full-scale cityscape, *View of Delft*, is leaving Europe for the first time to be in the show. Its origins can be traced to the city profiles painted in the borders of large wall maps of the Netherlands.

Royal Cabinet of Paintings Mauritshuis, The Hague

ing it in a Paris museum exhibit, is struck down by blood poisoning. He dies memorably, muttering, "little patch of yellow wall . . . little patch of yellow wall."

Women reading or writing letters, women and men deeply immersed in music—these slightly enigmatic domestic scenes speak to us so indelibly as Vermeer subjects that it sometimes comes as a surprise to be reminded that his earliest art was in the tradition of "history" paintings: scenes from the Bible and from mythology. The exhibition has three of those youthful pieces, probably painted when Vermeer was still in his early 20s—*Christ in the House of Mary and Martha, Diana and Her Companions* and the still controversial *Saint Praxedis* (p. 116), first exhibited in 1969, which Wheelock believes is by Vermeer, but which some other authorities do not yet accept. Even Vermeer's history paintings were outside the expected mode. Dutch art of the time was often devoutly and charmingly narrative or anecdotal. Vermeer didn't tell stories; his figures often seem to be suspended between two significant moments, as if time had miraculously paused for them.

At first sight, *Saint Praxedis* is a startling departure from Vermeer subjects, the only painting preoccupied with blood. Praxedis, a holy woman who tended the re-

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mains of early Christians, kneels on the ground, her hands gripping both a cross and a sponge, from which she squeezes blood into a ewer; the blood comes from the decapitated martyr lying behind her. The piece turns out to be a close copy of a work by a contemporary Florentine, Felice Ficherelli. Nevertheless, head to the side, eyes cast down, totally focused on her labor, this saint has the pensive, faraway look of a Vermeer woman.

The discovery of an Italian work that clearly inspired *Saint Praxedis* was a small, all too rare triumph of Vermeer research. Art historians habitually mourn the absence of useful contemporary details about his life, but the fact is—absent the tribes of critics and gossip columnists who feed our interests today—we don't have many details about Vermeer's peers either.

Most likely he abandoned historical themes for what are loosely labeled "genre scenes" in keeping with the period. The Dutch had defeated and expelled their Spanish occupiers, and most of the people had replaced Catholicism with Calvinism. The country had a prosperous mercantile class that bought art but probably was not receptive to dramatic New Testament imagery.

Vermeer's range was astonishingly limited. He did not paint landscapes (except for small works that decorate the walls of some of his interiors); he did not paint separate still lifes (although many of the pictures hold brilliant arrangements that are informally still lifes). None of the faces in his pictures are identifiable portraits. Except for a half-hidden pair of youngsters at play in *The Little Street* (p. 119), children make no appearance in his work, although his home was crowded with them. Of the 15 he fathered, 11 survived infancy.

We don't know where he studied or with whom he apprenticed. There are no Vermeer drawings or oil sketches, the kind of swift notations that provide a beguiling glimpse of the artist thinking his way into a formal painting. On the other hand, x-ray machines and other modern instruments have found figures and objects that Vermeer eliminated or altered, giving explorers of the work a solid sense of slow, painstaking care. Wheelock knows what lies below the surface of all of the paintings that are or might be Vermeers. The underlayers always show changes.

One surprise is what was found under the small (9 by 7⅛ inches) *Girl with the Red Hat.* It is, unusually for Vermeer, on a wood panel rather than canvas, and x-rays revealed that directly under the image of that sensuous young creature—with no paint layer separating them—is a bust-length portrait of a man in a brimmed hat. The style of the man's head, according to Wheelock, is similar to that found in small portraits by Carel Fabritius.

Frequent contributor Helen Dudar last wrote on efforts to control trafficking in stolen art (September) and about film company Merchant Ivory (March).

It is a disconcerting discovery. Would Vermeer have obliterated the work of a man who was probably a friend or even, as seems possible to some scholars, a teacher? When he died, Vermeer owned at least two Fabritius paintings, and one of the rare published references to him actually suggested Fabritius at least as a major influence. Considered Rembrandt's most gifted pupil, Fabritius settled in Delft in 1650; four years later he was killed in a devastating explosion of the city's gunpowder storehouse. A history of Delft published in 1667 included an elegy to Fabritius, with these tantalizing lines: "But happily there rose from his fire / VERMEER, who masterlike, trod his path."

Kenneth Clark, the British art historian, once concluded from the evidence of the paintings that Vermeer must have worked in two rooms, each with a different set of leaded-glass windows bringing light from the left. But another authority observed that one could as readily conclude from the pictures that he set up his easel in as many as nine different interiors. In fact, he appears to have used or altered or invented spaces to suit his

Rijksmuseum, Amsterdam

Woman in Blue Reading a Letter (1664): her intensity is so palpable that one hopes the news is not too bad.

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needs, and he could have done it all in a single studio.

One of the intriguing aspects of his work is the way Vermeer kept returning to favored objects. That famous ermine-trimmed, lemon-yellow satin jacket, which belonged to his wife, appears in six paintings. In nine paintings a brilliantly textured Turkish carpet (or tapestry) can be found, often crumpled, on a table. The wooden chairs with the well-known lion's-head finials are seen in 11 paintings. And in picture after picture we are offered glimpses of a luminous pearl earring or a shapely white Delft wine pitcher.

Those repetitions might signify a poverty of imagination or a poverty of props. Still, Vermeer was apparently capable of borrowing such costly items as huge wall maps and virginals when he wanted them for a painting. Maybe he felt most comfortable using known objects; it seems just as plausible to suggest that he was obsessed with a few familiar things, with their shapes and colors and the ways they reflected and absorbed light—which was, above all, his eternally favorite subject.

Vermeer, born in 1632, grew up in fairly comfortable surroundings. His father owned an inn and was an art dealer. Delft was a thriving place with a population of about 25,000, an important pottery industry—famed for its blue-and-white Delftware—and 200 breweries; it was safer to drink beer than the water.

By the time he was 21, Vermeer had taken two major steps: he had married, and he had joined the local trade association, the Guild of St. Luke, a requirement for anyone whose livelihood involved making or dealing in arts or crafts. His wife, Catharina Bolnes, was Catholic, and Vermeer converted to Catholicism, possibly to placate a somewhat disapproving mother-in-law, Maria Thins. From the evidence of his art, a scholar once concluded that Vermeer must have had "a placid and lovely disposition," apparently lovely enough to develop a comfortable relationship with this difficult woman. Eventually she shared her home and income with his and Catharina's large family. Like his father, Vermeer also dealt in art and sold his own work, but his production was slow, and he seems to have perennially been short of funds. On his death, two Vermeers went to his baker to settle a huge bill for bread.

Because Vermeer painted so few pictures—depending on the authority, from 31 to 35 works are admitted to the canon, and perhaps 7 others have been lost—his name virtually vanished from the world of art for two centuries and has been forever burdened with a romantic fable of his isolation. Actually, Dutch collectors have always treasured his work, and he was sufficiently respected in his own time to be twice elected the dean or "headman" of the Guild of St. Luke. There are surviving diaries of contemporaries from other cities who made trips or detours to find him. One admirer traveled to Delft twice from The Hague, later writing in his journal,

National Gallery of Art

Scholars are still debating whether *Young Girl with a Flute* was painted by Vermeer or one of his circle.

Barbara Piasecka Johnson Collection Foundation

A recent convert to Catholicism, in 1655 Vermeer painted Saint Praxedis, who cared for martyrs' bodies.

Städelsches Kunstinstitut, Frankfurt am Main

Dividers held in one hand, his other hand resting on a book, Vermeer's geographer embodies the spirit of inquiry. At the hub of exploration during the 17th century, the Netherlands was the center of mapmaking.

"I went to see a celebrated painter named Vermeer."

In the past century, he became celebrated once more when King William I of the Netherlands acquired *View of Delft* and installed it in his royal gallery in the Mauritshuis. Experts in Dutch art began looking at paintings ascribed to other artists and concluded, not always correctly, that they were the work of Vermeer. Inevitably, collectors became interested. In 1887, on a trip to Europe, Henry G. Marquand, a New York financier and a lavish supporter of the young Metropolitan Museum of Art, bought the elegant *Young Woman with a Water Pitcher* for $800. Two years later, he gave it to the Met, the first of the master's art to reach an American museum.

Details of Vermeer's life are sparse, and much of what has found its way into print is the result of the diligence of John Michael Montias, a Yale University economics professor and art lover who spent parts of at least a dozen years exploring Delft's moldy municipal archives. In Vermeer's day, almost every major financial transaction was witnessed by a notary. Each notarized document was filed in one of the bulky volumes that survived the centuries, and almost everything bearing the Vermeer name turns up in Montias' *Vermeer and His Milieu: A Web of Social History.*

We can only guess at the character and personality of the man who painted those serene images, but Montias' research yielded poignant details from the end of the artist's life. Vermeer was only 43 when he died in December 1675, leaving his large family in financial distress. The following year, his wife applied for permission to use the capital tied up in a trust, explaining her plight. A ruinous war—the French invaded Holland in 1672—had blighted the economy, and for some time Vermeer could sell nothing. "As a result," Catharina Bolnes related, "owing to the great burden of [his] children . . . he had lapsed into such decay and decadence, which he had so taken to heart that . . . in a day and a half he had gone from being healthy to being dead."

Montias is also the source of speculation that for a time Vermeer had a single important patron who was the heir of a rich brewer; he not only lent the artist money but is assumed by some Vermeer scholars to have bought those paintings that, years after, were sold off from the estate of a son-in-law. The catalog of that famous 1696 auction offers tantalizing glimpses of Vermeers we will never know: a self-portrait; a view of some houses; a gentleman washing his hands in a room with sculptures.

The National Gallery exhibition will show one work that, sad to say, falls short of perfection, indeed a picture that Wheelock, among others, has bluntly labeled "a failure." This is Vermeer's *Allegory of Faith*, a religious piece completed in the last years of his life. The picture's setting is a rich Dutch interior, its Faith a large woman with one foot on a globe, one hand on her breast and her eyes melodramatically raised toward heaven. On the black-and-white-tiled marble floor is a bitten apple—symbol of the transgression of Adam and Eve—as well as a crushed, bloody snake representing Sin vanquished by Catholic belief. Wheelock points out that Vermeer seemed to find it necessary to place his images in specific surroundings, and the image of Faith triumphing over Evil does not fit very well into a richly furnished 17th-century Dutch interior.

On the other hand, "real"—almost photographic—though his greatest pictures appear, they are magical inventions, ultimately realer than real. For years, for example, Vermeerists prowled Delft, searching in vain for the model of *The Little Street.* Contemporary street maps of the city show nothing like the collection of dwellings in the picture. It seems that Vermeer created the street, combining existing buildings, a small alley and the arrangement of doors and windows to suit himself.

Hardly anything was immune to the demands of his educated eyes. Consider the large contemporary map of the Netherlands that appears as a wall decoration in two paintings. It was a costly piece, probably borrowed, and an example can still be seen in the collection of the Westfries Museum in Hoorn, in the central Netherlands. For each painting, the dimensions were altered and colors changed to suit the composition.

Finally, there is the wondrous matter of absent shadows. In *Woman in Blue Reading a Letter*, a chair against the wall is lit by the unseen window on the left and, quite logically, casts a shadow. Logically, the woman should also cast a shadow, but she does not. Its absence craftily, brilliantly emphasizes her presence. Wheelock felicitously calls this wily trick Vermeer's way of "manipulating reality." As only Vermeer could, he was gently compelling us to pay attention, and we do.

Just under two feet high, Vermeer's *The Little Street* (c. 1657-58) conveys the poetic beauty of everyday life.

Rijksmuseum, Amsterdam

"When did my mechanic become my best friend?"

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By Rudolph Chelminski

Harmonicas are… hooty, wheezy, twangy and tooty

They're from the Old Country, but there's nothing better for American music, from blues to honky-tonk—and the fans are blown away

It's all the fault of "Peg o' My Heart."

It must have been around 1947 or '48 when I first heard this amazing *sound* coming out of our family's old radio. I heard it again and again, too, because that particular recording of "Peg o' My Heart" was destined to become, with some 20 million sold, the second-most-popular 78 rpm single ever produced in America, exceeded only by Bing Crosby's infuriatingly addictive "White Christmas."

The guilty parties were called the Harmonicats, I soon learned, and they were a trio—just three guys blowing into harmonicas. Unbelievable! How did they do it? It turned out I wasn't the only one asking that question because a few million other Americans did exactly what I did. We marched right out and bought harmonicas, hell-bent on discovering the place inside the shiny little silver toy where the *sound* was hiding.

There weren't many of us who found it. Within a few weeks I got pretty sharp on "Oh Susannah" and "The Red River Valley," but I never managed to achieve that magic sound. And there was something else, too, something very, very frustrating—I couldn't play "Peg o' My Heart." Not entirely, anyway—not right. It started out fine, and the lyrics washed through my brain as I tootled along: "*Peg o' my heart I love you . . .*" But then everything went to hell.

As soon as I tried to launch into the inspired poesy that followed (". . . *Don't let us part, I love you, I always knooo it would be yooo*"), the melody didn't come. I mean, the notes just weren't there. I sucked and blew and twisted and turned and went up above and slid down and tried every combination possible, but it was no use. Just when I aspired to reach the lyrics' immortal supplication, the note for that "*Don't*" part fled, causing me deep angst and introspection. Was I inadequate? Was I a lousy musician? (I was, but that's beside the point for the purposes of this article.) Furthermore, my frustration continued as the lyrics maundered toward their Statement of Purpose: "*Since I heard your lilting laughter, it's your Irish heart I'm after.*" Dammit, now I couldn't get the notes for "*your*" or "*I'm.*" Where were those notes?

Not in my harmonica, as it turned out, nor anyone else's, for that matter—not even the Harmonicats', if they had been using the same hardware as me. After weeks of struggling to wring the missing notes from my instrument, I finally learned that there were two fundamentally different kinds of harmonicas: diatonic and chromatic. The diatonic (my original purchase) was what might be called the "My Country Tis of Thee" model, with only the basic seven-note scale built into it—the white keys, if you will. The chromatic, more complicated and more expensive, could, as its name implied, explore the full 12-note range of colors of more-complex music—call it the "Peg o' My Heart" model. The chromatic had the notes for "*Don't,*" for "*your*" and for "*I'm*" built into it—the sharps and the flats. The white keys *and* the black keys.

I eventually got a chromatic and triumphed, sort of, over "Peg" but never came close to the artistry or the sound of the Harmonicats. Years later I discovered why. To begin with, those three guys—Jerry Murad,

The Harmonicats' echoing version of "Peg o' My Heart" was 1947's top tune. Granddaddy of manufacturers is Germany's Hohner Company; above, 1938 "Echo Elite."

Don Les and Al Fiore—were terrific musicians, and second, they were using the right equipment in the right place. In a recording-studio version of singing in the shower, they had improvised a primordial echo chamber by bouncing their notes off the marble tiles of a nearby men's room.

It was dynamite. Murad played lead on a chromatic, Les lent depth on a bass harmonica and Fiore did dazzling, up-front runs on a chord harmonica. Shucks, I had never even heard of bass or chord harmonicas. After that, I could never again look a mouth organ in the eye and just think "Oh Susannah."

The harmonica's been called the pocket piano, the French harp, the Mississippi saxophone and, in honor of its lonesome, bluesy wail, the heart's horn. Or the accordion with soul. In its earliest versions, it was known as the *aura*, the *psallmelodikon*, the *symphonium* and the *mundaeoline*. Its ancestors are the ancient Jew's harp (or jaw harp) and the Chinese *sheng*, primitive applications of the vibrating "free reed" principle: air blown over a reed fixed at one end but floating free at the other produces a note that can be tuned according to the length and thickness of the reed. File down the reed to make it thinner at the top, and the pitch goes up; file down the base, and it drops. Put several reeds side by side, precisely tuned to the scale, and you've got yourself a musical instrument.

There is still some dispute over who invented the harmonica, but by the 1820s a Thuringian teenager named Christian Friedrich Buschmann was beginning to market his *aura*, a mouth organ working on blow notes only. Kim Field, author of the definitive treatise *Harmonicas, Harps, and Heavy Breathers*, quotes Buschmann's somewhat overpitched letter to his brother: "I have also invented . . . a new instrument that is truly remarkable. In its entirety it measures but four inches in diameter . . . but gives me twenty-one notes, all the pianissimos and crescendos one could want without a keyboard, harmonies of six tones, and the ability to hold a note as long as one would wish to."

Within a few years a gaggle of clever Germans and Austrians were horning in on Buschmann's act. A Bohemian named Joseph Richter refined the harmonica with the basic invention that made it what it is today: double reed plates, one for blow notes and the other for draw notes. Richter's ten-hole, 20-reed instrument offered a full diatonic scale. The standard model was born. Then, in 1857, Matthias Hohner appeared on the scene. The world of the harmonica, such as it was, would never be the same.

Today still, the Hohner Company is to harmonicas what Dr. Scholl's is to foot pads: neither inventor nor exclusive purveyor, but so deeply involved, so ambitious and so successful that the name virtually defines the entire field. He was a go-getter, that Matthias. A 21-year-old clockmaker from the Württemberg village of Trossingen, he rapidly tired of the ancestral routine of trudging through Bavaria with big wooden timepieces on his back to peddle to dirndled *Hausfrauen* in Hansel and Gretel cottages. ("Big special this month on our

new, improved cuckoo model, ma'am—bong on the quarter-hour, cuckoo on the half.")

Sometime in the mid-1850s, he looked around and decided that there was no future in clocks. High tech was the only way to go, and high tech in Trossingen in those days was the newfangled instrument that a fellow townsman named Christian Messner was turning out by hand in his nearby farmhouse. A born wheeler-dealer, Hohner did what his instinct told him to do: steal. Insinuating himself into the workshop, he jollied up Messner's naive partner long enough to get a grasp of the basic design and manufacture techniques, then went home and started building the devices himself.

Hohner forged opportunistically ahead of all his rivals, outhustling and outselling them through sheer energy, adding staff, improving machinery and gobbling up competitors with such appetite that by the time he died in 1902 the name "Hohner" was virtually eponymous with "harmonica." The progress of the company was vertiginous. From the single employee laboring in Hohner's kitchen to produce 650 instruments in 1857, it grew to a staff of 3,000 in 1913, for ten million instruments. By the '20s, Hohner was producing 25 million harmonicas a year.

It is one of the minor curiosities of recent history that along with chewing gum, pizza and running shoes, the harmonica found its promised land in the USA. Hohner's first timid steps in the direction of westward export met with such a tremendous response that by 1880 he was producing exclusively for the American market, and in spite of frantic hiring could not keep up with demand. Those huddled masses in the urban sweatshops and prairie schooners were building the nation's future to the airs of the mouth organ's brassy reeds. The violin, the banjo and the piano could come later, when they had a little more space and a little more money, but until then they could have a serviceable harmonica for a dime.

The harmonicas on the sound tracks of a million Westerns are, of course, a cliché. But they really do reflect something of the reality of the period. The cowboys didn't have much to keep themselves company out there on the range, but with a pocket piano they could make musical poetry in their own way. Kim Field digs out the truth of the cliché by quoting country musician Herman Crook, who played at Nashville's Grand Ole Opry until his death in 1988 at age 89: "You can make a tune sound pretty lonesome on the harmonica."

You can make it sound pretty blue, too, and millions of blacks who couldn't afford a piano, a sax or a horn turned to the harmonica to make their own unique poetry, turning the basic, ten-hole, 20-reed diatonic model into what is now universally known as the "blues harp." The classic ingenuity of the poor rapidly led them to discover that they could wring theoretically impossible notes from their instruments by artful overblowing, distorting the reeds enough to "bend" notes down to bluesy flats. The great range of harmonica sizes, shapes and models readily lends the instrument to stunting. The itinerant Mississippi-born musician Rice Miller de-

Among the 23,000 items at the Harmonica Museum in Trossingen, Germany, are (clockwise from top left) the all-plastic, USA-made "Cornymonica"; the Hohner "Harmonetta"; the "Pipeolion," capable of "cornet or pipe organ sounds"; the "Boomerang," for export to Down Under; the "Aero Band"; a very early model (c. 1835); and a six-key wheel harmonica (c. 1890).

At the 1995 Swiss Harmonica Festival, Uwe Penzoldt and his father, Andreas (left), stole the show. Nelly Schierz played with the quartet Trio Flagranti Plus.

veloped an irresistible one-man-band routine for drawing a crowd: planting a mouth harp in his lips, he made melodies by deftly flicking his tongue back and forth as an organ stop and accompanying the performance by dancing, clapping his hands and snapping his fingers. Another, Noah Lewis, is said to have played two harps simultaneously, one through his mouth and the other through his nose. I don't want to know how.

In and out of fashion according to swings of the musical-fads pendulum, the harmonica could until recent days lay fairly legitimate claim to status as *the* musical instrument of America. Lincoln, so the story goes, scored a nice demagogic point in his 1858 senatorial campaign against Stephen Douglas by waving a harmonica at the crowd, his poor man's equivalent, he said, of his opponent's brass band, and Presidents Wilson, Coolidge and Eisenhower all played the mouth organ with varying degrees of virtuosity. Boys' harmonica bands were tremendously popular vaudeville acts until World War II, and astronaut Wally Schirra completely faked out Mission Control—and performed the inaugural extraterrestrial concert—by blowing "Jingle Bells" on a tiny Hohner "Little Lady" that he had sneaked aboard Gemini VI in December 1965.

Even if the harmonica has been dismissed from its top spot of late by the dreaded electric guitar and the music called rock, it still reappears regularly on recordings of pop artists like Stevie Wonder, Billy Joel and Bruce Springsteen, and groups like the Beatles and Aerosmith. Bob Dylan single-handedly created an entire international industry of guitar-cum-harmonica buskers with the plaintive strains of "Blowin' in the Wind," while

Blessedly, say his family and denizens of his town in France, the author has little time to play the harmonica. He wrote about French bread in January.

a true virtuoso like the Belgian-born jazz master Jean (Toots) Thielemans can command a fee of up to $5,000 a night. Larry Adler, virtuoso of virtuosi on the chromatic, was a favorite musician of the Gershwin brothers and rose to become one of the highest-paid entertainers in America until he wised off in 1947 to the House Un-American Activities Committee during its Communist witch-hunt and moved to England. Now over 80, Adler is still going strong, touring the world and cutting new disks. His CD accompanying Kate Bush and Sting was the number two best-seller in the United Kingdom last year.

Adler is an absolute model for the weird, up-and-down world of American showbiz. After winning schoolboy competitions and the Maryland state harmonica championship at age 14, he tried out for Borah Minevitch's Harmonica Rascals, the most famous of the boys' bands. Adler made the mistake of going highbrow, blowing Beethoven's Minuet in G on his Hohner chromatic. Minevitch, a notorious philistine, reacted immediately and succinctly: "Kid, you stink!"

Adler was to thank Minevitch for his churlishness because his refusal to take the "kid" aboard the Rascals forced Adler into the soloist's role, where he prospered mightily, first on the vaudeville circuit and eventually the world's concert stages. Vaughan Williams, Milhaud and Villa-Lobos wrote pieces for him. The first time he played "Rhapsody in Blue" with George Gershwin, the great man said "Goddamn thing sounds as if I wrote it for you." Adler was the first-ever harmonicist to perform solo with a full symphony orchestra (the Vivaldi A-Minor Violin Concerto in 1939 with the Sydney Symphony). Ravel gave him exclusive rights to play "Bolero" without paying royalties, and Adler paid him back by promptly getting lost during a concert in the piece's *tom-tickatom* thicket. A true trouper, he simply improvised the second half, scandalizing the orchestra leader but

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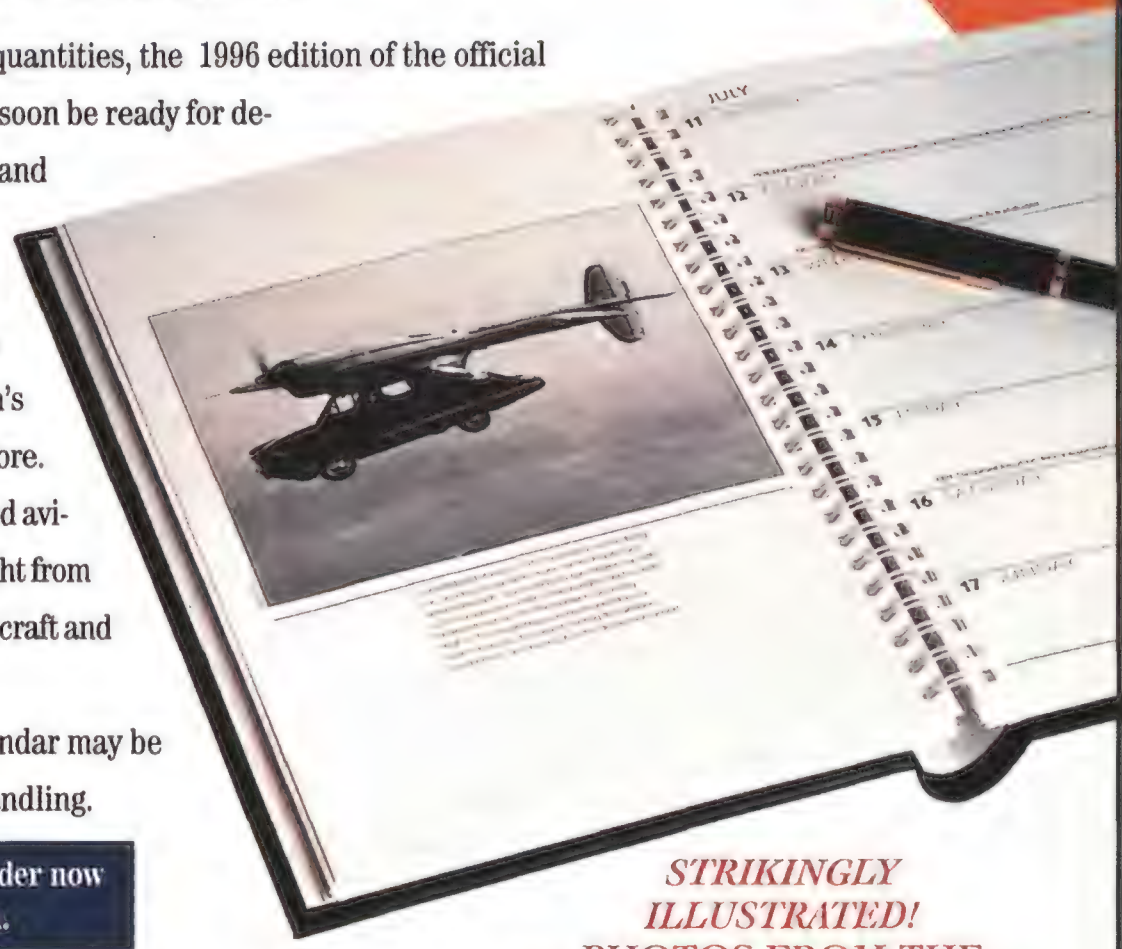

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completely hoodwinking the audience. Some years later, Adler had a famous face-off with Eugene Ormandy in front of the Detroit Symphony. The maestro came close to apoplexy when Adler told him the orchestra would have to tune to his Hohner and not the opposite; Ormandy had no choice but to acquiesce, grumbling. You can't quickly tune a harmonica.

In Trossingen today, Hohner continues to reign as the biggest act in town but is far from the near-monopolistic glory of its boom times in the 1890s and 1920s. Its local staff is now only 600 (1,000 worldwide) for about two million instruments a year, and competition is getting stiffer from brands like Suzuki, Huang and Lee Oskar. Today's Hohner Company has branched out into several other types of musical instruments (notably top-of-the-line accordions), and the harmonica represents only about 20 percent of total turnover. But even so, it is the mouth organ alone that brings notoriety to this remarkably undistinguished, clean little town (pop. 15,000). At the Hohner factory, local women tirelessly tune reeds, *plink-plink*, with their little files. After so many generations of selection by Hohner's peculiar requirements, the women are said to be genetically inclined to perfect pitch.

Every four years, Hohner hosts the World Harmonica Championships, an event that is both a high-level musical jamboree and a first-rate marketing gimmick, setting against one another several hundred players from around the world to compete in different categories: jazz, blues, classical, folk, etcetera. Nor does the company end its promotional energies there. Hohner has recently become a tour operator, organizing precisely targeted musical tours. A couple of years ago it opened "Hohner Music and Culture Centers" in a dozen music shops around Germany and a musical kindergarten in Trossingen. Get 'em while they're young. It's a grand old tradition: founding father Matthias made a religion of promotion, investing heavily in ads, colorful posters and harmonica box illustrations to fit every occasion. His five sons carried on the custom, notably in America by hiring Buster Keaton to flog the instruments and, in 1924 and 1925, by sponsoring the Hohner Harmonica Hour on a New York radio station.

A Hohner worker "tunes" reed plates. Filing the base end lowers the pitch; filing the free end raises it.

Two full floors of harmonica history and art

So it continues today. "We do many chess tours," said Holger Seyler, Hohner's director of marketing, over a cool glass of beer in a tavern just around the corner from the factory. "Bavarian people appreciate music very much, so these tours are quite popular."

I was on the verge of asking a dumb question—How in the world could chess help promote music?—when I realized that I was simply falling afoul of his Bavarian accent. "Jazz" tours, the man was saying. Not long after, accent problems returned when I was closeted with Martin Häffner, the young director of the unique Harmonica Museum in downtown Trossingen. Two full floors of harmonica hardware, harmonica history and harmonica art, the museum traces the instrument's development from the first crude wooden blowers to the most sophisticated modern chromatics, which are representative of the 300 different models Hohner puts out in all 12 major and all 12 minor keys.

"An important moment for the harmonica after the war, in America, was 'Peck On My Heart,'" he said earnestly. "Do you remember it?"

Did I ever, even if his Bavarian version of the Harmonicats' momentous single was slightly different from my own. They remembered it, too, in the Swiss town of Rothrist, where the 1995 Swiss Harmonica Festival was held over a sunny weekend in late May. No world-championship event being scheduled this year, this smaller get-together provided a good glimpse of what harmonica people are like, and what they like to do.

To begin with, they are nice, and what they like to do is play. They play constantly, they encourage one another, and they smile and they hug. They also strikingly bear out Häffner's thesis that the harmonica offers a perfect reflection of national characteristics and the zeitgeist of the moment. The Swiss tend to play in groups, and their music is cheery, alpine and oompah-pah. The French go solo and are heavily into jazz. The Poles—there was a terrific trio from Katowice—wear tuxedos and play Bach as flawlessly as famed organist E. Power Biggs.

The Americans were represented by Norm Dobson, a

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In 1940 Larry Adler was making $2,000 a week soloing classical works with major symphony orchestras.

"I just as soon died—except for my harmonica," said blues legend Sonny Terry, nearly blind since age 16.

66-year-old bear of a man from Peabody, Massachusetts, who smiled longer and hugged harder than any of the others. Vice president of the Society for the Preservation and Advancement of the Harmonica (SPAH), Dobson is a burly ex-marine who hustles indefatigably around with a stiff-legged limp thanks to the shower of Korean War shrapnel that destroyed his left knee. The man is so positive and so optimistic that he almost thanks the anonymous Communist gunner for doing him a good turn, because Dobson's year and a half of hospitalization offered him the chance to learn to play the chromatic properly. "I couldn't play diddly at first," he said, "but in the hospital I started getting good. After getting morphine for my leg just one time, I liked it so much that I decided I'd better just play the harmonica instead. Well, that harmonica turned out to be the best medicine in the world."

Today Dobson plays clubs, bars, weddings and the like, blowing lead chromatic with his group, the Harmonichords, and is happy to admit that he could not ask for anything more out of life, except perhaps more universal love and respect for the mouth organ. "Some people put it in the category of a toy, like a kazoo," he said, genuinely hurt and puzzled. "But it's a wonderful instrument, and you can do things with it that no other instrument can do—split chords, double stops, triads, everything that music contains. But even with that, a lot of people just don't understand. I'm still mad at the BBC for their coverage of the 1993 championship in Trossingen. We had fantastic musicians there—even Larry Adler came!—and you know what their man did his report on? A guy who played the harmonica upside down in a phone booth."

My own early sense of wonder at the harmonica was renewed when I heard Uwe Penzoldt play. Uwe is a 12-year-old German boy from the lake town of Konstanz who goes by the stage name "Harry Caine," and who has suddenly appeared on the harmonica scene like a Paganini of the diatonic. When he launches into a blues number he is not simply a child prodigy. It is as if an aged, world-weary black virtuoso from Memphis or New Orleans had passed on and been reincarnated in the form of a guileless blond Teuton schoolboy in faded jeans, with a holster full of Hohners around his waist. Uwe, who plays both solo and in duets with his father, Andreas, stole the show at Rothrist. Last year, Dobson brought Uwe and his dad to the SPAH championships in Memphis, where the boy began by winning the junior title in the official competition and then went on to blow away the audience in company with Don Les of the original Harmonicats, the Babe Ruth of the U.S. mouth-organ scene.

"Don had never played onstage with a youngster," said Dobson, "but I said, 'Just listen to him.' Uwe played for him, and Don said, 'Come on kid, we'll knock their socks

off.' They did, too. They played 'Sunny Side' five times, with the last chorus together, and the crowd couldn't believe what they were hearing. Don said if he were king he'd pass his crown on to this young man. Thirty-nine days later Don died of a heart attack. So if Uwe keeps at it, he's going to have that crown. No doubt about it."

Throughout the two days of the Swiss festival, on either side of Uwe's jaw-dropping pyrotechnics, I suppose I heard just about every great chestnut of classic harmonica repertory, from "Malagueña" to "Bolero," "Tico-Tico," "Ruby" and, of course, a flood of foot-stompin' alpine oompah-pahs, and got closer than I ever thought possible to the daunting calisthenics of the backup musicians: bassists obsessively nodding their heads as they jumped from one superimposed instrument to the other, moving from "white keys" to "black keys," while the chord players, with their yard-long man-killers, dove frantically from one end of their sticks to the other in an exhausting chase after exactly the right accompaniment for their lead artists. I got tired just watching them.

As Dobson and I relaxed during a break, we compared notes on the performances, and he filled me in on harmonica lore and the technical details of this curious little tributary of the mainstream musical scene: the Teflon mouthpieces, the pure silver harmonicas, the gold one that Hohner is putting out next year for the 100th anniversary of the Marine Band model, Larry Adler's beryllium copper reeds, the different methods and styles of vibrato. Then I asked the inevitable question: "How'd you happen to get into harmonicas?" Dobson smiled. I ought to have known.

"Oh, I was just a grunt walking the streets of Memphis in '48," he said, cheerfully retreating to his youth. "I passed a music store, and there was this amazing *sound* coming out of the loudspeaker. I went right in and bought me an $8.50, 16-hole chromatic. Been playing it ever since, and here I am. The harmonica opened up the wide world for me. I owe it everything I've got."

You know what that sound was over the loudspeaker, of course. Turns out that the same song that pecked on my heart pecked on Norm Dobson's too. Ours and a few million others.

Bob Dylan, who got his start in Greenwich Village as house harp player at the Cafe Wha?, was one of the first to put his harmonica on a neck frame—a practice still emulated today by street musicians worldwide.

Company bets everything on $200 million pair of legs

Breakthrough technique for removing unwanted hair without pain.

by Paige Clements Yasnowsky

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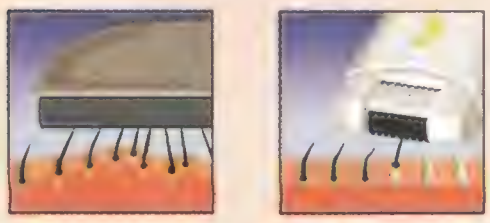

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A modern solution. Removing unwanted leg hair can involve smelly chemical lotions, messy waxes or razors. For most women, few of these methods are satisfactory. Shaving requires daily attention and often brings with it

New device turns any electrical outlet into a phone jack!

by Charles Anton

You don't have to have a teenager to appreciate having extra phone jacks. Almost everyone wishes they had more phone jacks. When I decided to put an office in my home, I called the phone company to find out how much it would cost to add extra phone jacks. Would you believe it was $158? Today, there are a thousand reasons to get an extra phone jack and a thousand excuses not to get one. Now an engineering breakthrough allows you to add a phone jack anywhere you have an electrical outlet. Without the hassle. Without the expense. And without the miles of wires.

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The Wireless Phone Jack lets you add a phone, modem, fax machine or answering machine almost anywhere.

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nicks, skin irritations and stubble. Waxing is messy and time consuming, not to mention uncomfortable. Electrolysis, the only truly permanent solution, is both painful and costly. Plus, it usually requires months of treatment.

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One woman speaks out...

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Sepulchral portraits reveal the way we were in ancient times

Two-thousand-year-old mummy paintings show neither gods nor heroes but the sophisticated men and women of the provinces of Roman Egypt

Portrait of an unknown man (circa A.D. 50), with its strong contrasts of color and lighting, recalls Modigliani.

At first glance the portraits seem not at all ancient, the work perhaps of an Impressionist artist; some appear downright modern, the creations of an emulator of, say, Modigliani. In fact they were made nearly two millennia ago in the Nile Valley in a huge, fertile basin called the Fayum. For the first three centuries A.D. the people there and elsewhere in Roman Egypt not only embalmed their dead but also placed a portrait of the deceased over the face of the mummy wrappings, shroud or case. Preserved by the dry desert environment, such works make up the richest body of portraiture to have survived antiquity. They provide us with a window into a remarkable society of peoples of mixed origins—Greeks, Egyptians, Romans, Syrians, Libyans and others—that flourished 2,000 years ago in the Fayum, one of the agricultural breadbaskets of the ancient world.

More than a thousand mummy portraits have been recovered in the past century or so and are now in museums and private collections throughout the world. Euphrosyne Doxiadis, a Greek-born artist, has spent five years studying the paintings. Some 180 of them appear in her book *The Mysterious Fayum Portraits: Faces from Ancient Egypt*, published by Harry N. Abrams Inc.

In the three centuries between Alexander the Great's conquest of Egypt in 332 B.C. and the establishment of Roman rule by Octavius Caesar, a Greco-Macedonian regime ruled Egypt, and the Nile Valley became a mixing bowl of new immigrants and their cultures. Intermarriage was common, new towns sprang up to accommodate the increased population, and various religions blended together. The portraits on the mummies represent a melding of the Greek painting tradition with the Egyptian funerary practice of mummification.

Families of means commissioned artists to paint portraits of loved ones for the eventual adornment of their mummies. Other portraits were done posthumously. The more realistic the image, the better the commemoration of the dead. The popular fashions of Rome were reflected in depictions of hairstyles, clothing and jewelry. The portraits were painted on wood or linen using tempera or encaustic, a blending of pigments with hot wax or cold emulsified wax. Artists traveled the country peddling their skills and sometimes taking goods, such as "one artaba of wheat and two knidian jars of wine," in exchange for a painting.

For author-artist Euphrosyne Doxiadis, the portraits have a magical quality: "through the frame of the mummy wrappings peers a face that is alive, its eyes laying bare the soul of the portrayed for eternity."

Marlane A. Liddell

Hundreds of yards of linen surround the haunting image of Hermione, a teacher who died near age 25.

Relatively simplistic—and quirky—rendering of a man with a wreath of pink crocuses was probably by an artist untrained in the more realistic Greek painting tradition.

A priest of the Greco-Egyptian god Serapis wears a diadem bearing a seven-pointed star. The Rembrandt-like work (circa A.D. 138-161) is thought to have been done by a great master.

Full-length mummy shroud (circa A.D. 193-235) shows a woman holding an ankh, a sacred Egyptian symbol of life. A fragmentary inscription gives her age, 45, and has the wish "Fare well!"

Gold leaf has been used lavishly for jewelry, makeup and clothing on a portrait of a girl (circa A.D. 25-37). Spiky gilt shapes contrasted with the contours of her face are striking.

Female portrait (circa A.D. 117-138) is known as "The European" because of subject's peach-toned complexion. X-rays reveal a tunic pinned with a large brooch under the gold-leaf bib.

Gold leaf frames this portrait (circa A.D. 100-125) still affixed to a mummy case. The man was very tall, and his powerful shoulder muscles indicate that he may have been an athlete.

Funerary shroud (circa A.D. 140) bears a near-life-size figure of deceased (center), flanked by Osiris, a god of the underworld (left), and Anubis, a god of the dead.

Adorned with Egyptian symbols, this mummy case with portrait (circa A.D. 253-268) was among the first to be discovered. It was sent to Europe in 1615.

Opposite: portrait of a youth (circa A.D. 150-250) has faint traces of a beard and mustache that reveal his age; falcon is reminiscent of Horus, a god of the sky.

By Douglas Preston

The granddaddy of the nation's trails began in Mexico

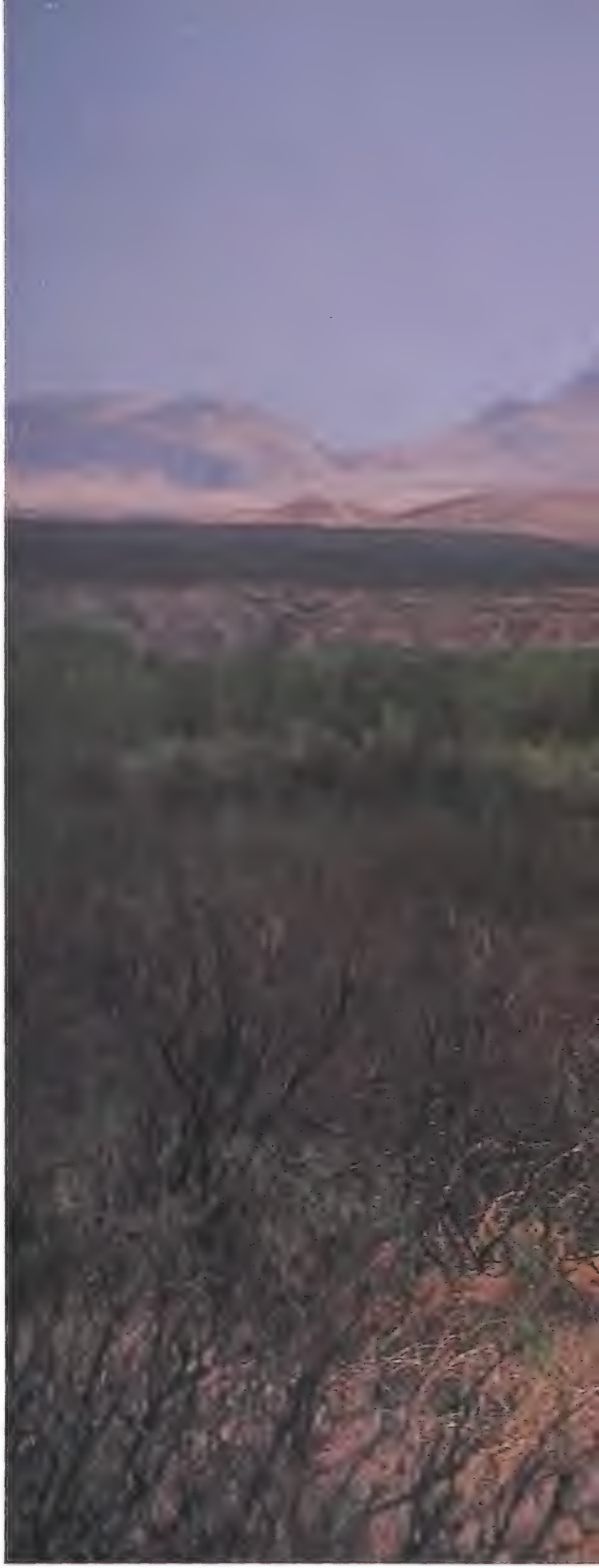
The Camino Real, after languishing in the shadow of the Santa Fe, the Oregon and the California, is finally getting its due

My wife, Christine, and I are standing in the middle of the Jornada del Muerto, or Journey of the Dead Man, a vast stretch of desert between Las Cruces and Socorro in south-central New Mexico. We are 40 miles from the nearest paved road, waiting for dawn. The austere Fra Cristóbal Mountains rise on our left, their barren summits flaring pink. To our right, a jagged line of broken basalt against the horizon marks the beginning of the *malpaís*, the badlands, an impassable area of immense lava flows. Between those lava flows in the east and the mountains in the west is a gap of only 500 yards. On geological survey maps it is called Lava Gate, and anyone traveling north or south in the Jornada del Muerto must pass through it.

Now at last comes the moment we've been waiting for as the sun breaks over the distant Sierra Oscura, throwing an oblique sheet of golden light across the desert floor. Suddenly we can see them: faint wagon-wheel ruts that roll toward us over the northern horizon, converge at Lava Gate and vanish southward.

For months we have been chasing the ghost of this ancient Spanish trail. Called El Camino Real de Tierra Adentro, the Royal Road to the Interior Land, it was the 1,800-mile trail that connected Mexico City to Santa Fe, the farthest outpost of the Spanish empire. Lava Gate is one of the few sites in the Southwest where this ancient scar of history is still visible. In most other places it has been buried under highways and railroad beds.

Nothing has changed at Lava Gate in a thousand years. This landscape remains as it was in the 11th centu-



Riding a descendant of the Spanish explorers' "horse of the Conquest," a vaquero retraces the Camino Real.

Here, near Socorro, the trail crosses the Bosque del Apache, a wildlife sanctuary dense with cottonwoods.

Photographs by Christine Preston

Windmills, water tanks and missions like El Paso's Ysleta, which the author visited, are common trail sights.

Ancient wagon-wheel ruts are still visible through the spiky desert grasses that blanket the trail's Lava Gate.

ry when Pueblo Indians traded turquoise, salt and macaws along this trail; when the conquistador Don Juan de Oñate rode through this gap in 1598; and when an 18-year-old runaway named Kit Carson drove oxen down here in 1827. It was still the same in 1945 when the terrible incandescence of the first atomic bomb, detonated 30 miles away, lit up this landscape.

Allow me to make an outrageous assertion: of all the historic trails in the United States, the Camino Real was the most significant. It was the first European road in the nation, and for many years the longest in North America. Some of the earliest European settlers in what would become the United States used this trail. The first breeding horses, cattle and sheep entered the West via this trail. The wheel, gunpowder, written language, iron and Christianity first became established here via the Camino Real. But although it changed the nation's history, the Camino Real has languished in obscurity while other trails, arguably of lesser import (I am referring to the Oregon, California and Santa Fe trails), were celebrated in book, song and film.

This neglect may finally be drawing to a close. Two years ago, Congress authorized the National Park Service to study the Camino Real for inclusion in the National Trail System's historic division. If all goes as planned, the trail will soon become the continent's first international historic trail, commemorated by both the United States and Mexican governments. A major new museum devoted to the Camino Real is in the works as well. The museum will be built near Socorro, with the input of both American and Mexican historians.

The Camino Real began thousands of years ago as a series of Indian footpaths. The first European colonists in the Southwest, led by Juan de Oñate, made their way along this Indian trace in 1598. The emigrant train consisted of 129 men, many with families, and 7,000 head of livestock. It embarked from Santa Bárbara, a Spanish settlement in Mexico, and journeyed for 300 miles across harsh deserts before striking the Rio Grande near present-day El Paso. The local Manso Indians guid-

In Talking to the Ground *(Simon & Schuster, 1995), the author chronicles his 400-mile horseback journey tracing the mythical trail of a Navajo god.*

Located at the north end of the Jornada del Muerto, the Gate bypasses perilous lava flows and mountains.

Museum displays wagon reproductions at a trail stop; in Jornada, surplus trucks are used for gunnery practice.

ed the Spaniards to the "pass of the north" and showed them the ford they had been using for centuries to cross the river. Oñate called it *las puertas*, the gates, and today it is called Oñate Crossing.

The names of some of those trailblazers—Martínez, Carabajal, Salazar, Baca, Leyba, Romero and so on—are now common throughout northern New Mexico. It is one of the marvelous ironies of history that the oldest European families in the United States are people of Hispanic origin who can rightly look on the members of the Mayflower Society as mere parvenus.

The Spaniards marched another 350 miles beyond El Paso before settling. They gave their campsites names, many of which survive along the Camino Real today. Robledo Mountain and a nearby trail stop were named for one of Oñate's officers, Pedro Robledo, who died during the trip. Two days into the Jornada desert, as the men were making a waterless camp, a little dog with muddy paws sauntered by. The dog's tracks led to pools of water in an arroyo. The men named the campsite Ojo del Perrillo, the Spring of the Little Dog, and the name "Perrillo" still sticks to area landmarks.

The Spaniards first settled close to the Rio Grande near present-day Espanola, New Mexico. A decade later, they moved to a more congenial spot—a cozy river valley rustling with pines and cedars and nestled at the base of some high mountains. They named the new town Santa Fe, "Holy Faith." For the next 200 years, the Camino Real would be the only significant link between New Mexico and the outside world.

As one era began, another ended. In 20 years, most Indian trade along the trail ceased. The friars who came with Oñate tried to suppress Pueblo religion, thus stifling much of the commerce in ceremonial items such as feathers and shells. The Indians were devastated by slavery, exploitation and disease.

The trail did not exactly bustle with traffic. It took wagon trains 1½ years to make the trip from Mexico City to Santa Fe and back. The journey was extremely dangerous; travelers died of thirst, heat, Indian attacks and disease. One Spaniard who survived the trail wrote back: "Oh God! What a lonely land!"

The supply train usually consisted of 32 wagons carrying 64 tons of goods, mostly for the missions: sacramen-

tal wine, bronze church bells, vestments, silver chalices and candlesticks, carved saints, religious paintings, crosses, incense, lamp oil, cloth, tools and many other items. New Mexico shipped back piñon nuts, hides, wheat, corn, raw wool, salt, cattle and Indian slaves.

To give an idea of the ruggedness of the trip, each wagon was required by law to have a complement of 20 mules—two teams of 8, plus 4 extra to replace any that died. Each wagon also had to carry 62 pounds of tallow for lubrication, three extra iron tires, two spare axles and dozens of extra spokes, as well as cord, nails, bolts, washers, harping pins, cleats, linchpins, ribs, saws, hammers, adzes and crowbars. A wagon that returned to Mexico City was not the same one that had set out: almost everything had been replaced at least once.

In 1821 American traders blazed the Santa Fe Trail from Missouri to New Mexico, linking the United States and Mexico via an overland trade route. Wagons plying manufactured goods from the East Coast and Europe poured into New Mexico. Because the New Mexican market was soon glutted, many American traders continued on down the Camino Real to Chihuahua City. A colorful account of travel in those days can be found in the journal of Susan Shelby Magoffin, the wife of a trader and one of the first white American women to ride down the Camino Real. The spunky 18-year-old caused a sensation in the Spanish settlements along the trail. "This whole afternoon I have been sitting here," she wrote, "an object of curiosity to them. . . . They whispered among themselves, picked at my dress—a great curiosity—fingered the bed clothes, the stools, and in short every thing . . . [one] old lady gave my neck a stinging pinch to see if it was truly as fat as it looks to be, and it surprised her to find it so solid."

Magoffin's journal draws a picture of an era that was ending. In 1846, during the Mexican War, U.S. troops invaded New Mexico along the Santa Fe Trail, marched south on the Camino Real and eventually routed the Mexican Army near El Paso. By 1850 Mexico had lost almost half its territory—the land we now call New Mexico, Arizona, Texas, California, Nevada and Utah, and parts of Colorado and Wyoming.

Salt cedars in brilliant fall color border Elephant Butte Reservoir, enlivening the view of the austere Fra Cristóbal Mountains; this setting is close to the proposed site of the El Camino Real Heritage Center.

The American section of the Camino Real became a stagecoach route, and a string of forts was built along the road to protect the citizenry from Indian attacks.

After the Civil War, the trail slowly lost its importance to the United States. The Navajo and Apache were defeated and packed off to distant reservations, and the forts abandoned. In 1881 the last spike on the railroad connecting Santa Fe to El Paso was driven into the desert floor. After that, the Royal Road to the Interior Land passed into the mists of history.

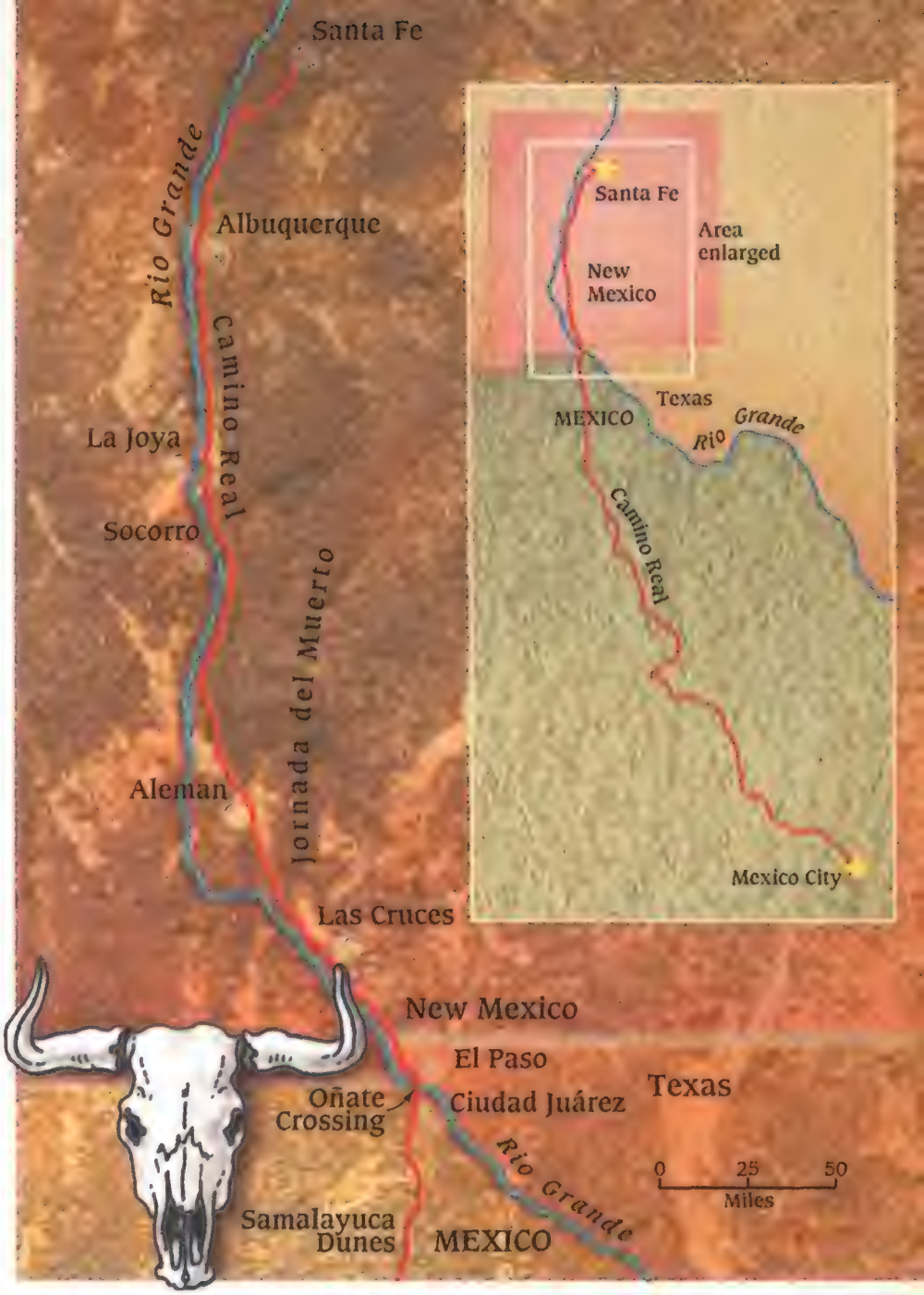
Christine and I spent the past year exploring the northern portion of the Camino Real, from Chihuahua state in Mexico to Santa Fe. We traveled on foot, by horseback and by car, all in all covering about 90 percent of the American portion of the trail. The route traverses some of the loveliest and ugliest landscape in the West. Sometimes we found it as a dirt road winding alongside deep groves of cottonwoods, with sandhill cranes and great blue herons flying overhead. Sometimes it was a lonely railroad track vanishing on the horizon. Sometimes we found a cheerful country road passing through Hispanic villages and fields of ripening chile peppers. And sometimes we found ourselves creeping along a downtown avenue lined with strip malls, fast-food joints and used-car lots.

And then there were beautiful times when we found almost nothing at all—just a long, broad depression in the ground, sometimes marked by a subtle change in vegetation, or visible only when the sun was low on the horizon. That was the original, the *real* Camino Real.

Parts of the trail are still very isolated. This is particularly true of the part that crosses the Jornada del Muerto desert. There was only one way for us to retrace this 90-mile section of trail: on horseback.

The idea was rather daunting. Although many travelers died crossing this desert, its morbid name derives specifically from the fate of one Bernardo Gruber, a trader at Quarai Pueblo in New Mexico who was called "El Alemán," "the German." On Christmas Day in 1668 Gruber bragged about a spell he had learned to cast. According to one witness, he was drunk at the time. Word got back to the Holy Office of the Inquisition, and Gruber was arrested for practicing witchcraft. Realizing the grim fate that awaited him, he made a daring escape and fled southward on the Camino Real with his Apache servant, Atanasio. The men headed out across the Jornada. Parched and exhausted after a day in the desert, Gruber stopped to rest and sent his companion ahead for water. By the time Atanasio got back, Gruber had taken a horse and disappeared.

About a month later, travelers happened across Gruber's dead horse, tied to a tree. Nearby they found a mass of human hair, a skull and a few gnawed bones. They gathered the bones for burial in El Paso and erected a cross at the spot, which is now known as Aleman.



The Prestons spent months exploring the northern part of the Camino Real; inset shows the entire trail.

We start our retracing of the Jornada trail 30 miles south of Socorro at a desolate place near what was once the Paraje de Fra Cristóbal. The name is all that is left of the Campsite of Father Cristóbal, named by Oñate after his cousin. It had been one of the most important camps along the Camino Real, as it was the last southbound rest stop on the river before crossing the Jornada. In 1846 Magoffin wrote about the bleakness of this place, saying that "there is not even the dusky walls of an adobe house to cheer its lonely solitude." Legend has it that the face of Fra Cristóbal (who died near here in 1599) is still visible in the Fra Cristóbal Mountains.

The Paraje de Fra Cristóbal is even lonelier today than in 1846. We find nothing but a shattered windmill standing on a lava escarpment above the river. Most southbound travelers on the Camino Real stopped here for a day or two to rest and water the livestock before tackling the desert. To avoid the heat they left in the evening and drove the teams all night, arriving early the next morning at Laguna del Muerto, the Lake of the Dead Man, 25 miles south. If there had been a recent

Harsh winds sculpt the sand of Samalayuca into a graceful symmetry of dunes and furrows, but passage is very treacherous. Early travelers often opted for a two-day detour around the dunes.

rain, the animals could water. Usually, though, the lake bed was dry, so the animals were unhitched and driven to a spring some distance down a rugged canyon.

Today the Laguna del Muerto is a parched flat covered with rattleweed. The railroad tracks that ended the life of the trail still run across the desert, and twice a day we see, in the distance, a freight train lumbering by.

We are traveling light—just two horses and saddlepacks. We have been riding for days across the endless landscape. The barren blue hills are hypnotic. The only sound is the rhythmic creaking of leather. So vast is the desert that we seem to be stationary.

The site of Gruber's death turns out to be the headquarters of the Aleman Ranch, an old adobe hacienda with whitewashed walls and a tin roof, shaded by cottonwoods. We tie our horses in the yard and knock on the door, nervously, since we are not expected. Our knock is answered by the ranch owner, Ben Cain, a tough, slow-talking cowman with a weathered face as complicated as an old map. We are ushered into the cool interior. A vast pitcher of iced tea appears, and the stories begin to flow. No, Cain doesn't know where the name Aleman came from; that's what the place was always called. Officially his spread is called the Bar Cross, "on account of the brand." The old wagon road came right through the backyard, Cain says, between the barn and the corral. As late as the 1920s, the odd traveler would come through on it. Did we know that the first well in the Jornada was dug by hand out back? "Struck water at 50 feet. It was good water too"—would we like a swallow?

We retire to the backyard, where a stiff breeze is cranking a windmill that pumps water into a tank. Cain pulls a battered tin cup off a nail, fills it up and passes it to me. Delicious!

We mosey around the side, past the corral, and duck through an adobe room filled with old saddles and tack. The whitewashed walls are almost three feet thick.

"Find any graves around here?" I ask.

Cain looks at his boots and chuckles. "Well, there is a story about a plumber who was out here years ago, digging under one of these dirt floors to lay some water pipe. Suddenly his head pops out of the hole, white as a sheet, and he says, 'There's a skeleton down here, what do we do?' So the owner says, 'I'm paying you by the hour, ain't I? Hell man, push the damn thing aside and git back digging!'"

So who was the skeleton?

"Never did find out. Somebody killed in a disputation, I suppose, and put under the floor." Aleman had been an inn and stagecoach stop when the Camino Real was an American wagon road, and it was a lively place.

Where does the road go from here?

"That way. If you squint and look sideways, you can just about see it."

We head south the next day, but no matter how much we squint and look sideways, we still can't see the trail.

After a long, hard ride, we arrive that evening at the next campsite on the trail, Ojo del Perrillo. The site lies on a flat area south of Point of Rocks, a cluster of volcanic hills that was a major landmark on the trail. After rainstorms, water collects in a nearby arroyo bottom and persists for days. We find a series of damp, silted depressions that show where the pools usually form. Nearby are the skeletons of a cow and a horse.

We pitch our tent south of the old campsite, where there is a windmill, a cattle tank and corrals. We rest by the fire in silence, watching the desert light die on the flanks of Point of Rocks, turning the rocks from blue to gold to purple to black. At nightfall, bats whisk into our camp, slicing through the firelight like bullets. Not far away a family of coyotes moves toward water, their high-pitched cries echoing off the distant hills. The next

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You'd think getting a bunch of teenagers to study engineering in their free time would be impossible. But Al Ware, of General Motors' Vehicle Launch Center, helped get 5,000 students enrolled in the Detroit Area Pre-College Engineering Program this year. They take advanced science and math courses. They do engineering projects like building a full-scale moveable car entirely from paper. And they learn they can solve just about any problem they set their minds to solve. Al says, "The more we put into this community, the more we'll get out of it." He's right. Because some former teenagers he inspired are designing better automobiles at GM today.

After a dusty journey on horseback, the author takes a dip in a cattle watering tank on the Aleman Ranch.

day's ride brings us to Interstate 25 and the end of our 90-mile trek across the desert.

Some months later, we explore a southern portion of the trail by car, using El Paso as a base. In El Paso, Christine and I discover that the Rio Grande's Oñate Crossing now lies behind a restaurant on Paisano Drive. A small monument commemorates the spot. Across the river, the dusty, slum-crammed hills of Ciudad Juárez rear up against a smoky sky. There is the sound of distant sirens.

We sit in our aluminum folding chairs at sunset, eating chips and salsa, watching the U.S. Border Patrol vehicles cruise along the bank. This stretch of the border is now the proving ground for Operation Hold-the-Line, the most successful effort ever undertaken to stop illegal immigration from Mexico. We flag down one of the vehicles and talk to James Gonzalez, a supervisory Border Patrol agent. "At sunset," he says, "they used to be lined up there, 30 deep, waiting for darkness. Now, as you can see, there's nobody."

The next day, we extend our exploration into Mexico, driving across the Bridge of the Americas—the 20th-century equivalent of Oñate Crossing. We are searching for one of the most notorious sections of the Camino Real, Los Médanos de Samalayuca—the great sand dunes of Samalayuca. Forty miles south of the border, we see them rearing up on the horizon as high as a mountain chain. Travelers had a choice of either climbing over the dunes or taking extra days to go around them. Those who opted for the direct route doubled their teams on each wagon. Many, however, paid dearly for their impatience. "Towards sunset," wrote one British adventurer in 1847, "we passed a most extraordinary mountain of loose shifting sand. . . . Road there is none, but a track across is marked by the skeletons of oxen, and of mules and horses, which everywhere meet the eye. On one ridge the upper half of a human skeleton protruded from the sand. . . ."

At a police checkpoint, we ask about getting into the dunes. The policeman peers suspiciously at us. There are no roads. "*Muy peligroso.*" Very dangerous.

"Oh well," I say, "let's go back to the States."

"The hell with that," says Christine. "Turn here." She points to two tire tracks winding out into nowhere.

Our pickup truck has four-wheel drive, but as we grind along, the sand comes up to the hubs. After ten miles we find ourselves in a vast dunefield with no hope of continuing much farther. In front of us, the dunes rise hundreds of feet. The wind is blowing fiercely, and plumes of sand curl off the tops of the dunes. I am anxious to clear out, wondering if we too will leave our skeletons in this godforsaken place. But Christine is preoccupied with other thoughts. "Now we wait for sunset," she says firmly, "to get a photograph."

Last spring, Roeliff Annon, a friend of mine who owns a breeding stable, invited us to explore a remote section of the Camino Real on horseback, using original Spanish equipment. The section traversed some rugged desert country in central New Mexico. Roeliff's "original equipment" was a breed of horse believed to be a direct descendant of the so-called "horse of the Conquest." This was the horse that Cortés rode into Tenochtitlán and that Oñate herded up the Camino Real. Today, a little more than a thousand of these animals survive in North America.

We start at a place called La Joya de Sevilleta, a tiny town along the Rio Grande. In the early days, La Joya was a staging area for southbound wagons. Here the authorities carefully inspected everyone's firearms, powder and ball, and any man not properly armed was turned back. South of La Joya, the ancient trail crosses two wildlife preserves, the Sevilleta National Wildlife Refuge, which is normally closed to human entry, and the fabulous Bosque del Apache. We ride south, deep into the wilds of Sevilleta, following an abandoned track that is probably the old trace of the trail. Roeliff and his partner, Silvio Mazzarese, sit on their horses at the edge of a bluff, searching for some sign of the trail, their serapes whipping in the wind.

That night, we relax around a roaring fire miles from anywhere, Silvio strumming his guitar and singing mournful Spanish songs, the hobbled horses grazing off in the darkness. We are joined in camp by Gabrielle Palmer, who is the director of the Camino Real Project, a group of historians and archaeologists who have spearheaded the effort to research the trail and gain more recognition for it. Palmer, a leading scholar of Spanish colonial art, is now in charge of developing the new Camino Real museum. After listening to off-key singing, bad jokes in two languages, ungracious com-

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ments about the food and an occasional curse directed at a horse hanging around too close, she turns to me. "By God, this is the way it was," she says. "No history book can give you *this*."

Authenticity is what Palmer intends to convey with the El Camino Real International Heritage Center, which is being cosponsored by the Camino Real Project, the Museum of New Mexico and the Bureau of Land Management and will cost $8.5 million. The museum will be built along the trail on an isolated knoll above the Rio Grande, 25 miles south of Socorro. The views from the site encompass the northern end of the Jornada del Muerto desert, the Rio Grande and spectacular mountain ranges. Palmer hopes to use video technology to show life and travel on the trail against the real landscape. The museum will also include outdoor reconstructions of campsites and staging grounds, peopled with volunteers in period dress. Indian, Spanish and American cultural traditions will be represented.

There is one place Christine and I return to, again and again: the Laguna del Muerto, the Lake of the Dead Man. We end our many months of exploring the trail by camping on the eastern shore of the lake. Here is another famed trail stop that has sunk into obscurity, no longer even marked on the maps. It is fall, and the salt cedars along the shore have turned yellow and pink. The dry lake bed is a web of cracks, and beyond it stands an abandoned graveyard: some oblong piles of rock set with wooden crosses.

As we sit by the campfire that night, we wonder how long it has been since the last overland traveler raised the dust of this ancient trail. Three centuries ago this area would have been alive with the braying of mules, the clatter of harquebuses and the shouts of drovers. But when we listen, all we can hear is the sound of wind shaking dead rattleweed. The great campsite at the Laguna del Muerto, like the rest of the Camino Real, has vanished under the sand.

With the lights of Santa Fe twinkling in the distance, ancient Pueblo Indian carvings serve as reminders of the diverse history of the area. The Pueblo chiseled the petroglyphs on this basalt ridge six centuries ago.

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By Jerry Dennis

Pliny's world: all the facts— and then some

In A.D. 77 a workaholic called Pliny the Elder published the first encyclopedia, Natural History. *Headless people were among the many marvels*

In 16th-century portrait (left), Pliny pores over his encyclopedia of more than "20,000 noteworthy facts."

My grandmother is afraid of snakes. There's nothing unusual about that, but Grandma's fear goes deep. She believes snakes are malicious, and that if you kill one even in self-defense its mate will track you down for revenge. She also believes snakes drink milk from cows. When she was a child in New Jersey, she maintained, a neighbor who was worried about his cow's sudden loss of productivity spent the night in the barn expecting to catch a thief and watched with his own eyes as a snake

One of the curiosities described in *Natural History* was a race of headless people whose eyes were in their shoulders, shown above in a 15th-century illustration. Such "facts" were believed well into the Middle Ages.

twined up the cow's hind leg, latched on to an udder and sucked poor Bessie dry.

I said, "Grandma, that myth is as old as the hills. Pliny the Elder described exactly the same thing almost 2,000 years ago."

"See?" she said, raising an eyebrow at my insolence. "Proof!"

My grandmother has never read Pliny, but from the first century A.D. through the Renaissance he was one of Western civilization's most influential writers. By the Middle Ages his encyclopedia of the physical world, *Natural History,* was the medieval equivalent of a runaway best-seller, and Pliny was undisputed as an authority on science, nature, mankind and the cosmos.

In a preface addressed to the emperor Titus, Pliny explained that his purpose in writing *Natural History* was no less than "setting forth in detail all the contents of the entire world." Accomplishing that ambitious feat re-

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Iron and Food

By Dr. Yoshiko Kagawa

Most iron loss occurs through the shedding of cells from the skin or digestive tract, and results in a loss rate of about 14 micrograms per each kilogram of weight per day. A person weighing 70kg (154 lbs.) needs to absorb about 1 milligram (mg) of iron daily. The iron contained in a day's food comes to 10–15mg, which seems quite enough. However, the actual absorption rate varies dramatically between 1% and 30% depending on a person's food intake and existing iron level.

In general, when the body has a sufficiency of iron, the absorption rate is low, and when the store is low, the absorption rate increases. Absorption is sometimes more than doubled by intaking vitamin C or by eating meat. Together, both can sometimes quadruple iron absorption.

Iron is more important for women than men, since women lose an average about 0.5mg of iron daily during menstruation. Since women eat less than men, many women suffer from iron deficiency anemia, especially in advanced countries where much of the food is refined and iron tends to be removed.

Foods with high iron content include liver (13–14mg per 100g), spinach (4mg per 100g), and soybeans (9.4mg per 100g). One way to add iron to food is simply use iron cooking utensils, so that iron dissolves into the food. Iron transfer is particularly effective with tomato products or vinegar, and in dishes which simmer a long time. In spaghetti meat sauce, for example, the transfer of iron to the sauce can be as high as 80mg per 100g. Studies have shown that in Japanese schools, iron intake from school lunches has almost doubled due to the use of iron cooking pans. Well-used and well-scrubbed iron pans and utensils are most effective in increasing iron absorption.

About the Author:
Dr. Kagawa received her Ph.D. in medicine from the University of Tokyo and a masters degree in science from the University of California. She became a professor at Kagawa Nutrition University in Tokyo and was named president of the school in 1990.

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An illuminated manuscript from Italy of Pliny's *Natural History* portrayed people with feet so huge they could be used as sunscreens in hot weather.

quired him to gather information by the cartload. No subject was too large for him and no detail too small. He synthesized much of what was known in first-century Rome about astronomy, meteorology, geography, anthropology, zoology, botany, pharmacology and the arts of sculpting and painting—referencing some 2,000 volumes by at least 100 authors to come up with the "20,000 noteworthy facts" he claimed were packed into the 37 books of his encyclopedia.

Those 37 books offer a great deal of very strange reading. If you plow straight through, as I did during a two-week marathon, you find yourself experiencing a slightly altered state of consciousness. Be warned: large sections of *Natural History* are slow-going. You might want to avoid Books III, IV, V and VI, for instance. They deal with the geography of the world in Pliny's time and are composed largely of meticulous and seemingly endless lists of harbors, islands, mountains, rivers, towns and cities, most of which cannot be found in modern atlases. But even Pliny's dullest pages of reportage are brightened by startling insights and bizarre observations. Throughout the encyclopedia, vivid descriptions of the fantastic, fallacious and unfounded are so boldly juxtaposed with accurate observations and historical and scientific verities that a reader can be forgiven for sometimes confusing the facts and the fallacies.

The fallacies alone are worth the price of admission. Odd and sensational excerpts from *Natural History* have been so widely read and so freely copied, pilfered and plagiarized that some of them still linger in our legends, superstitions, folklore and mythologies. Do porcupines shoot their quills? No, but Pliny wrote that a porcupine "pierces the mouths of hounds when they close with it, and shoots out at them when further off," and the

idea is still one of the most widespread zoological myths. Do our ears ring when we're the subject of gossip? There's no reason they should, but Pliny seemed to give sanction to that bit of lore when he said it was an "accepted belief" that "absent people can divine by the ringing in their ears that they are the object of talk." Do hair and fingernails grow on a corpse? Pliny mentioned in passing that they do, and a hundred generations of boys and girls have repeated the story with delicious shudders of horror.

In his calm, authoritative voice, Pliny assures readers that various parts of the world are home to dog-headed people who communicate by barking; fast-running people whose feet are turned backward and have 16 toes; people with feet so large that on hot days they lie on their backs with their feet in the air, shading them like umbrellas; people who are seven feet tall, never spit, and are exempt from toothaches and headaches; one-legged people who get around by hopping at great speed; headless, neckless people with eyes in their shoulders; and mouthless people who draw all of their nourishment from the scent of roots, flowers and apples and can be killed by offensive odors.

The animal kingdom is equally fantastic. To the north, never seen in Rome "although many have told stories of it," is an animal called the "achlis," an elk-like ungulate that has no knee joints and is therefore unable to lie down; it sleeps by leaning against trees and when frightened can run at great speed, but only backward, because its upper lip is so large that it drags on the ground and would trip the animal if it tried to run forward. In India there is the "mantichora," a terrifying carnivore that feeds on human flesh and is equipped with the body of a lion, the face and ears of a man, a triple row of teeth and a scorpionlike

Jerry Dennis is the author of several natural histories, most recently The Bird in the Waterfall, *to be published in spring 1996 by HarperCollins.*

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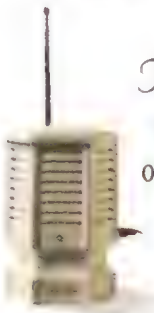

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tail that can inflict horrible stings. The "basilisk serpent" of Africa kills bushes on contact, bursts rocks with its breath and is so venomous that when one was killed by a man on horseback, "the infection rising through the spear killed not only the rider but also the horse."

In Pliny's pantheon of wildlife even many recognizable animals possess fabulous powers. Snakes wait in ambush in tall grass and launch themselves skyward to intercept high-flying birds. Other snakes grow so large they prey on elephants. Hyenas are hermaphroditic, capable of alternating sexes year by year, and are such gifted mimics that at night they prey on shepherds by calling their names to lure them out of their cabins. Elephants possess such virtues as honesty, wisdom, justice, and reverence for the sun and moon, and are nearly as intelligent as humans. Those elephants too slow-witted to master tricks can be found practicing alone at night until they learn to climb ropes and write simple messages in Greek.

Pliny was born Gaius Plinius Secundus in A.D. 23 in the town of Como in northern Italy. Almost nothing is known of his early life, but it is likely that his parents had fairly high social standing, were comfortably wealthy, and had ambitions for their son to climb in the social and political world of the Roman Empire. First in Como and later in Rome, he was educated in science, philosophy, literature, art, theater and oratory. At the age of 23 he entered the military and served most of his seven or eight years of duty as an officer in Germany, where he rose in rank to commander of an auxiliary cavalry regiment. After his military service he returned to Rome to study law and pursue a literary career.

Most of the details of Pliny's career have survived in eloquent letters written by his nephew, Pliny the Younger. They portray the elder Pliny as a man of intense curiosity and ambition, so tireless in his research and so dedicated to a life of letters that he slept only a few hours each day, devoted virtually every waking moment to his work and in the 56 years that he lived, tallied the equivalent of several lifetimes' worth of accomplishments. In addition to being a scholar and writer, he was a soldier, lawyer, government administrator and personal adviser to an emperor. "You will wonder," Pliny the Younger wrote, "how a man so engaged as he was, could find time to compose such a number of books." It helped, apparently, that he was gifted with "quick apprehension, incredible zeal, and a wakefulness beyond compare," and that he adhered religiously to a strict and disciplined system of managing his time.

The key to that system was to never waste a minute. Pliny typically worked about 20 hours out of every 24. He began his day at midnight or 1 in the

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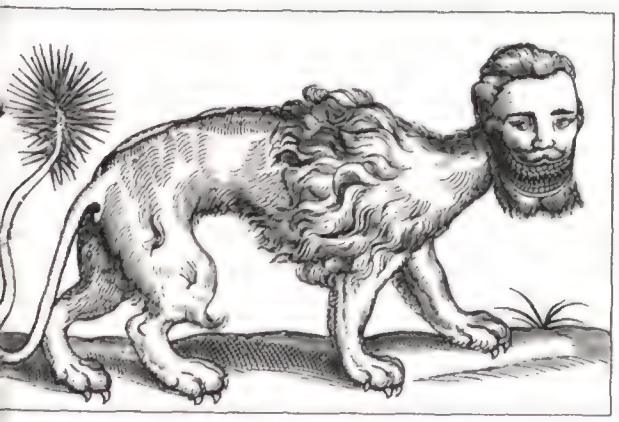


The carnivorous "mantichora" had a human face, lion's body, spiked tail.

morning, studying and writing until shortly before dawn, when he would leave home to meet with the emperor Vespasian and spend several hours attending to matters of state. After he had fulfilled his obligations to the state, he returned home to his studies and worked the remainder of the morning. At noon he ate a light lunch and, when the weather was pleasant, rested for a short time outside in the sun while books were read to him. He then bathed in cold water, napped and went back to work until dinner.

Only *Natural History* and a few fragments of Pliny's other books have survived, but it is clear that his literary output was astonishing by any standard. According to a letter by his nephew, Pliny's first book was *The Art of Using a Javelin on Horseback,* written while he was in the calvary in Germany. It was followed by *The Life of Pomponius Secundus,* a two-volume memorial to the senator who probably helped him secure his first military posting. His third undertaking was an ambitious one: *The History of the Wars in Germany,* a 20-volume account of Rome's military campaigns against the German tribes, a project Pliny claimed was inspired by a dream in which the ghost of a Roman soldier came to him and requested his memory be preserved in text. It was followed by *The Students,* a six-volume treatise on the art of oratory; *Linguistic Queries,* an eight-volume scholarly work; and a one-volume update of a 30-volume history of Rome, *History of Our Own Times.* There were, in addition, 160 volumes of unpublished notebooks. But the scholar's crowning achievement, finished in A.D. 77, two years before Pliny's death, was *Natural History.*

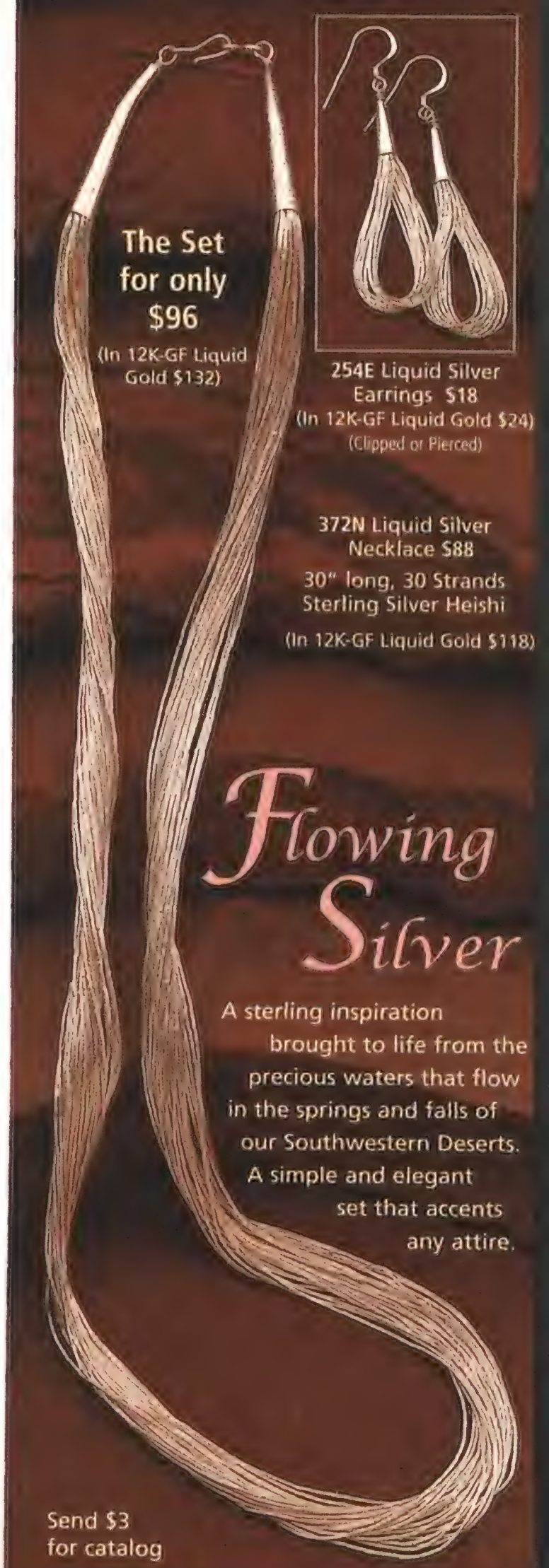
Pliny's magnum opus fits into the tradition of a long line of handbooks of knowledge meant to be primarily compendia of information. But Pliny often spiced the facts with commentary, which made for more interesting reading and also, perhaps unintentionally, revealed glimpses of the author's personality. From the clues offered by dozens of miniature essays on subjects as disparate as the declining moral values of Romans, the shameful quackery of the medical profession and the importance of nurturing the natural environment, we learn that Pliny was practical, pragmatic, moralistic and opinionated.

A man of his times, he was a Roman through and through, proud of his citizenship and convinced of the precedence of the empire over the individual. He was a stoic, with no illusions about human weakness and unreliability. He accepted the existence of fabulous creatures but was skeptical of magic and astrology; he remained a trusting devotee of a benevolent and maternal Earth but stayed aloof from a deity he believed had little interest in humanity. He was, above all, curious about everything.

Although his interests were broad, Pliny was clearly more captivated by some subjects than by others. He composed most of *Natural History* in a simple, unadorned style, yet broke into near-song when describing certain natural wonders.

About the moon, for instance, he wrote: ". . . she has racked the wits of observers, who are ashamed that the star which is nearest should be the one about which we know least—always waxing or waning, and now curved into the horns of a sickle, now just halved in size, now rounded into a circle; spotted and then suddenly shining clear; vast and full-orbed, and then all of a sudden not there at all."

On insects: "Where did Nature find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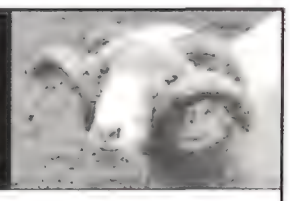

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a place in a flea for all the senses? . . . at what point in its surface did she place sight? Where did she attach taste? Where did she insert smell? . . . But we marvel at elephants' shoulders carrying castles, and bulls' necks and the fierce tossings of their heads, at the rapacity of tigers and the manes of lions, whereas really Nature is to be found in her entirety nowhere more than in her smallest creations."

On Earth: "She belongs to men as the sky belongs to God: she receives us at birth, and gives us nurture after birth, and when once brought forth she upholds us always, and at the last when we have now been disinherited by the rest of nature she embraces us in her bosom and at that very time gives us her maternal shelter. . . . Water rises in mist, freezes into hail, swells in waves, falls headlong in torrents; air becomes thick with clouds and rages with storms; but Earth is kind and gentle and indulgent, ever a handmaid in the service of mortals, producing under our compulsion, or lavishing of her own accord, what scents and savours, what juices, what surfaces for the touch, what colors!"

On the music of the spheres:

If a snake is killed, its mate will be "incredibly anxious for revenge."

A race of "mouthless" people needed no meat or drink to survive; they could nourish themselves by inhaling the scents of flowers, roots and apples.

"Whether the sound of this vast mass whirling in unceasing rotation is of enormous volume and consequently beyond the capacity of our ears to perceive, for my own part I cannot easily say—any more in fact than whether this is true of the tinkling of the stars that travel round with it, revolving in their own orbits; or whether it emits a sweet harmonious music that is beyond belief charming. To us who live within it the world glides silently alike by day and night."

If Pliny was a poet, he was a very practical one. Much of *Natural History* reads like an ancient version of *The Farmer's Almanac*, offering answers to problems people encountered in their daily lives, especially in garden, orchard and barnyard. Pliny's discourses on raising bees, cultivating grape vines, harvesting figs, preserving fruits and producing linen from flax are as specific and accurate as those found in modern guides to rural life. On subjects of which he had personal experience, he flat-out knew his stuff. Onions, for instance: "Those of the roundest shape are the best; also a red onion is more pungent than a white one, or a dry one than one still fresh, and a raw one than one that has been cooked." At his most practical, Pliny wrote prose that could serve as a model of precision and economy: "Boiling oxhide produces glue; bull's hide makes the best."

The encyclopedia's practical applications have contributed much to its popularity through the centuries. The books on drugs and home remedies for illness and disease were frequently printed in a separate edition, *Medicina Plinii*, which probably first appeared in about the fourth century and is known to have been reprinted at least as late as 1509. The appeal of that volume is sometimes difficult to understand. Pliny's treatments for headache included crushing snails and rubbing them on the forehead, applying an ointment made from the brain of a vulture to the inner part of the nostrils, eating boiled owl brains, and wrapping the temples with a rope that had been used in a suicide. For toothache he advised rinsing the teeth in a solution of vinegar and boiled frogs. Sneezing and hiccups could be stopped by kissing the nose of a mule. Hair loss, dandruff and "scanty eyebrows" were checked with an ointment made from bull urine mixed with sulfur. More familiar is this treatment for a dazzling variety of maladies: "Chicken broth also, taken by the mouth, is a splendid remedy, being wonderfully good for . . . prolonged fevers, paralyzed and palsied limbs, diseases of the joints, headaches, eye-fluxes, flatulence, loss

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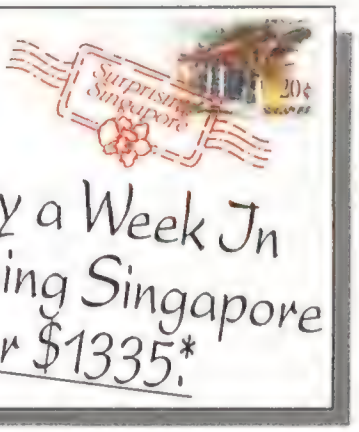

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As Earth was explored and science began making significant progress in the 16th and 17th centuries, *Natural History* began to lose credibility. Attacks on Pliny began as early as 1492, with the publication of "Concerning the Errors of Pliny" by Niccolò Leoniceno. By the end of the 17th century Pliny's work had been discounted by most of the influential scientific thinkers. Today, he is remembered primarily for his mistakes.

But he was not always mistaken. Portions of his sections on botany, mineralogy and metallurgy have earned Pliny the praise of modern experts for being comprehensive and correct. And though he was certainly an uncritical and often careless researcher, in a number of passages Pliny proved he could be a perceptive observer. He noticed, as many people have not, that rainbows occur only opposite the sun and "high in the sky when the sun is low and low when it is high." Discussing the electrical phenomenon now called "St. Elmo's Fire," he wrote, "I have seen a radiance of starlike appearance clinging to the javelins of soldiers on sentry duty at night in front of the rampart; and on a voyage stars alight on the yards and other parts of the ship, with a sound resembling a voice, hopping from perch to perch in the manner of birds."

His description of a nightingale's song is immediate and evocative, as if it had been composed while the bird sang just outside the writer's window: "The sound is given out with modulations, and now is drawn out into a long note with one continuous breath, now varied by managing the breath, now made staccato by checking it, or linked together by prolonging it, or carried on by holding it back; or it is suddenly lowered, and at times sinks to a mere murmur, loud, low, bass, treble, with trills, with long notes, modulated when this seems good—soprano, mezzo, baritone; and briefly all the devices in that tiny throat which human science has devised with all the elaborate mechanism of the flute. . . ."

Of all Pliny's writings, the most interesting might have been a journal entry, now lost, that described the eruption of Mount Vesuvius on August 24, in the year 79. His nephew wrote in a letter to the historian Tacitus that Pliny was working as usual that day in a villa on the shore of the Bay of Naples, where he had been placed in com-

Pliny wrote of a tribe of dog-headed people who communicated by barking; this is how one French illustrator depicted them in the Middle Ages.

mand of a navy fleet sent to suppress pirates. He took his customary sunbath, then a cold bath and ate lunch; he was at work in his study when, at about 1 o'clock in the afternoon, an unusual cloud down the bay was brought to his attention by his sister, Pliny the Younger's mother. He climbed to the top of a nearby hill to view the cloud, which from that distance was shaped like a pine tree, with broad, lateral branches extending from a tall trunk that appeared to grow from Mount Vesuvius.

Pliny wanted a closer look and ordered a small boat prepared. Before the boat could be launched, however, a message arrived from a friend who lived near Vesuvius. She and her family were in fear for their lives and pleaded for rescue. Pliny immediately ordered a fleet of large galleys launched, boarded one himself and ordered it steered toward the city of Stabiae at the base of the volcano.

As his galley crossed the bay, cinders and chunks of pumice fell in such quantities that the captain of the ship urged retreat. Pliny declared that "fortune befriends the brave" and ordered the fleet to continue on its course, standing on the open deck to watch the volcano while dictating his observations to a secretary. It would be his last literary endeavor.

Pliny reached Stabiae that evening and made his way to his friend's villa. He embraced her and assured her and the others who had gathered in the house that there was no cause for alarm. As if to put everyone at ease, he bathed and ate a cheerful dinner and went to bed early, sleeping so soundly that his snores resounded through the villa. The others sat up all night. By morning, so much volcanic debris had fallen that there was danger of being trapped indoors. Pliny and his companions tied pillows over their heads for protection and stepped outside into the rain of stone and ash. Though it should have been light out, the day was enveloped in darkness. They found their way to the shore, but waves

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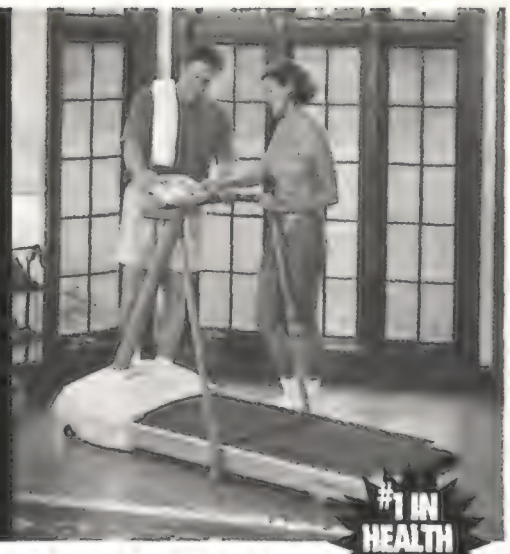

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prevented them from launching their boats. They had no recourse but to wait for the wind to shift.

Pliny, who was overweight and perhaps suffering from asthma, sat down to rest on a spare sail. When flames and sulfurous gases suddenly swept down onto the beach, everyone except Pliny ran in panic. Two of his slaves tried to help him to his feet, but he fell and they were unable to rouse him. His body was found the next morning, "entire and uninjured . . . its posture that of a sleeping, rather than a dead man." Pliny the Younger theorized that "some unusually gross vapor . . . obstructed his breathing and blocked his windpipe, which was not only naturally weak and constricted, but chronically inflamed."

In compiling everything known about natural history in his time, Pliny left an extraordinary record of how he and his contemporaries viewed themselves and their world. It remains a valuable source of information—and sometimes the *only* source of information—about the literature, art, science, medicine, agriculture and lifestyles of the ancient Romans. It was almost certainly a familiar text in the libraries of Marco Polo, Michel de Montaigne, Shakespeare, Milton and many others who have shaped the culture of Western civilization. In his history of the Roman Empire, Edward Gibbon gave grudging tribute to *Natural History* as "that immense register where Pliny deposited the discoveries, the arts, and the errors of mankind."

The errors, unfortunately, are more famous than the discoveries and the arts, and it is tempting to dismiss Pliny outright for being naive and scientifically inept. As my grandmother is now aware, this was the man who reported that at least one species of snake feeds on "milk sucked from a cow," and who claimed that snakes roam in couples, and if either of them is killed, "the other is incredibly anxious for revenge: it pursues the murderer and by means of some mark of recognition attacks him and him only in however large a throng of people, bursting through all obstacles and traversing all distances, and it is only debarred by rivers or by very rapid flight."

But as a monument to human interpretations of nature and a celebration of our diverse and bountiful planet, *Natural History* continues to inform and entertain. The most enduring of its qualities may simply be the author's tremendous capacity for wonder. His vitality, his enthusiasm, his passion to know and embrace all things equally are refreshing and infectious. The world according to Pliny is a place of wonders, both great and small, where everything is interesting and nothing is inconceivable.

When Mount Vesuvius erupted in A.D. 79, Pliny urged calm. It proved to be a fatal error: he collapsed on the beach and died, perhaps from breathing noxious fumes.

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Smithsonian's Notable Books for Children, 1995

Heroes
by Ken Mochizuki,
illustrated by Dom Lee

Home Lovely
written and illustrated by
Lynne Rae Perkins

The Gift of a Traveler
by Wendy Matthews,
illustrated by Robert Van Nutt

The Storm
by Marc Harshman,
illustrated by Mark Mohr

Lucy's Summer
by Donald Hall,
illustrated by
Michael McCurdy

One afternoon in Stockholm, during the winter of 1944, a 37-year-old housewife, about to become as famous as can be, sat in bed, propped up on pillows, writing away. Astrid Lindgren had slipped on an icy walk the day before and wanted to set herself a diverting task as she nursed a sprained ankle. The first sentences she scribbled down would crystallize into a passage instantly recognizable to millions of children:

"Way out at the end of a tiny little town was an old overgrown garden, and in the garden was an old house, and in the house lived Pippi Longstocking. She was nine years old, and she lived there all alone."

The setting is the ramshackle Villa Villekulla, an inviting yellow-frame cottage and the scene of Pippi's transfixing exploits. *Pippi Longstocking* emerged as a sensational success from the moment the book appeared in 1945 (published by Rabén & Sjögren). Fifty years later, the Pippi stories are the world's most translated books for young readers; the latest count shows the three novels appearing in more than 60 languages. (Lindgren herself, now a relentlessly vigorous 88, is the world's most translated living writer for children.) Pippi turns 50 this year, but it seems the moment to point out that she is ageless—and, as one admirer has put it, still "looks good in pigtails."

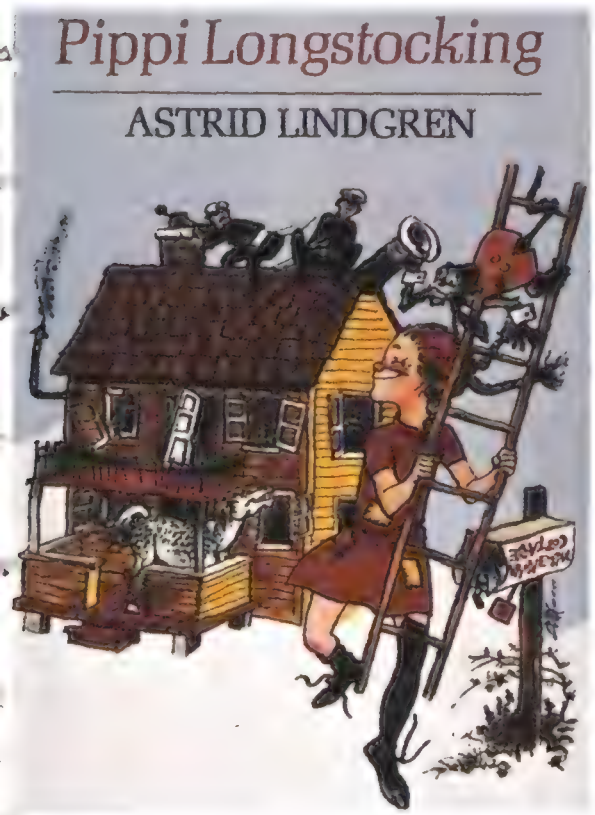
The freckle-faced renegade is mistress of all she surveys from Villekulla's veranda—the creaking gate, the gravel path, the noble climbing trees. Her domestic arrangements, as any of Pippi's countless readers can attest, are irregular at best. She manages without the interference of guardians or parents (Mama is "an angel in heaven"; devoted

Papa, a sea captain, has been lost at sea—although Pippi expects him to return at any moment).

The absence of adult supervision leaves her free to arrange her existence as she will—"there was no one to tell her to go to bed just when she was having the most fun, and no one who could make her take cod liver oil when she much preferred caramel candy." Under those conditions, one naturally has a good deal of time to flip pancakes onto the ceiling, whip up batches of 500 cookies at a time, toss crockery from the treetops, and adorn the parlor wallpaper with an image of "a fat lady in a red dress and a black hat" who brandishes a yellow flower and a dead rat. ("Pippi thought it a very beautiful picture; it dressed up the whole room.")

Not that she lives without companions. Mr. Nilsson, the monkey, cavorts around the kitchen and sleeps under a doll's patchwork quilt. Her beloved horse placidly munches oats from a soup bowl on the porch. (Whenever Pippi wants to canter off, she simply hoists her steed down from the front steps to the garden; as befits a heroine rooted in Scandinavian folklore, she is preternaturally strong.) And most of Pippi's waking hours are spent in the company of the children next door, Annika and Tommy, "good, well brought up, and obedient," who are liberated from a regimen of dreary nursery games once Pippi arrives.

This charmed existence, singularly unfettered, lies at the heart of Pippi's



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enduring appeal. Life at Villekulla speaks to one of the deepest and most alluring of early fantasies: the odyssey of the self-reliant and inventive child, drawing on inner resources to overcome obstacles and vanquish fears. Pippi has never encountered a hurdle she cannot surmount—"Don't you worry about me. I'll always come out on top" is her watchword—and children worldwide are ravished by her cheerful delinquency.

Adults, not suprisingly, do not always take kindly to such effrontery. Pippi is brash and blunt and rude. Ask her to afternoon tea and she will wolf down an entire cake. She won't intend to, but somehow it will happen. ("Now you mustn't feel bad about such a little accident," Pippi consoles the neighborhood matrons, who are miffed beyond words when a centerpiece confection vanishes before their eyes. "The main thing is that we have our health.") This incident set off a storm of protest when the novel first appeared in Sweden. "No normal child," groused an indignant correspondent, "sleeps with her feet on the pillow, or eats a whole cake by herself at a party." Lindgren retorted quietly: "No normal child can lift a horse with one arm either."

Providentially, Pippi is redeemed by her compassion and her courage. When five neighborhood bullies set upon one hapless boy—and have the temerity to tease Pippi—she trounces them one by one, Valkyrie-style. Face blazing, auburn braids streaming in the wind, she dispenses a just revenge to the ringleader and his cronies:

"'I don't think you have a very nice way with ladies,' said Pippi. And she lifted him in her strong arms—high in the air—and carried him to a birch tree and hung him over a branch. Then she took the next boy and hung him over another branch. The next one she set on a gatepost outside a cottage, and the next she threw right over a fence so that he landed in a flower bed. The last of the fighters she put in a tiny toy cart that stood by the road. . . . The boys were absolutely speechless with fright."

She is an equally passionate protector of animals. When Pippi comes upon a fellow beating his carthorse as it struggles to pull a crushing load, she thrashes that scoundrel as well. And carries the exhausted equine—"who was astonished"—home to the safety of his stall. And breaks the whip into "tiny, tiny pieces." And takes hold of the wagon

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shafts and pulls the cart home, so as to spare the steed the trouble.

Heroism such as Pippi's, quiet and unflinching, prevails in many of this year's titles as well: an Iowa farm girl risks her life to rescue victims of an 1881 train wreck; the young Frederick Douglass defies his oppressors; village women living on the outskirts of a rain forest in India thwart the developers who are clear-cutting their life-sustaining trees. High spirits abound too, in the tales of a mutt who renovates the doghouse of his dreams, a sea monster with a penchant for rescuing swimmers, and a boy who resorts to good-natured bribery in order to free Brooklyn from a punishing drought.

Home Lovely written and illustrated by Lynne Rae Perkins (Greenwillow, $15) A resonant, memorable tale of new beginnings, centered on a child who transforms the plot around her house trailer into a garden lush with melons and tomatoes. A fairy godfather, in the form of the mail carrier, comes bearing petunias. Could I choose but one title from 1995, it would be this book, shining with a grace all its own.

Pond Year by Kathryn Lasky, illustrated by Mike Bostock (Candlewick, $13.95) Waiting for muskrats, scouting for salamanders: a page-turning account of two friends, "wiggly little girls" up to their knees in mud, exploring the inner life of algae and frogs' eggs.

A Walk to the Great Mystery written and illustrated by Virginia A. Stroud (Dial, $14.99) Over the wooden bridge and into the woods with Grandmother, a Cherokee medicine woman and kindred spirit of hummingbirds and pine trees. A lilting excursion into the ineffable, and into Native American tradition.

Valentine by Carol Carrick, illustrated by Paddy Bouma (Clarion, $14.95) On a bitter February afternoon, a girl and her grandmother gather in a wood-stove-warmed kitchen to nurse a newborn lamb back to life. Certain to be another classic from Carrick.

Listen for the Bus by Patricia McMahon, photographed by John Godt (Boyds Mills, $15.95) The chronicle of David, a boy who "likes big dogs and listening to the train" and who happens to be blind, off for his first week of kindergarten. A testament to courage, with splendid photographs.

Waiting for Filippo: The Life of Renaissance Architect Filippo Brunelleschi written, with illustrations and pop-

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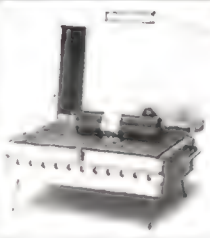

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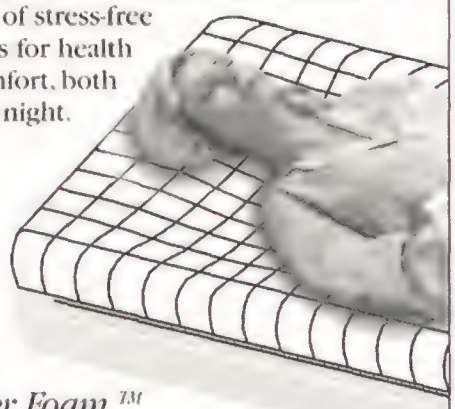

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Ten Flashing Fireflies by Philemon Sturges, illustrated by Anna Vojtech (North-South, $14.95) A clever counting book and an evocation of childhood's deep, dark summer nights, when dreams are as thick as stars.

Fernando's Gift / El Regalo de Fernando written and photographed by Douglas Keister (Sierra Club Books, $16.95) The author traveled "deep inside the rain forest in Costa Rica" to document the life of a family committed to saving that country's remnant of old-growth tracts. Superb natural history, featuring English and Spanish text.

The Last Dragon by Susan Miho Nunes, illustrated by Chris K. Soentpiet (Clarion, $14.95) Above a noodle factory, in a small apartment, a miracle unfolds: during the summer that a boy visits his great-aunt in San Francisco's Chinatown, he rescues a faded silk dragon from a shop window. A rare, wonderful story about the riches of an ancient culture, with refulgent watercolors.

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The Harvest Birds / los pájaros de la cosecha by Blanca López de Mariscal, illustrated by Enrique Flores (Children's Book Press, $14.95) In an eloquent rendition of a folktale from Oaxaca, Mexico, a young man whose "head holds many dreams" coaxes a patch of land into a green thicket of corn, beans and squash, as a flock of zanate birds imparts to him the deepest secrets of the earth.

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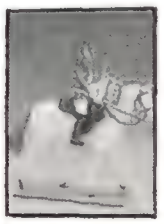

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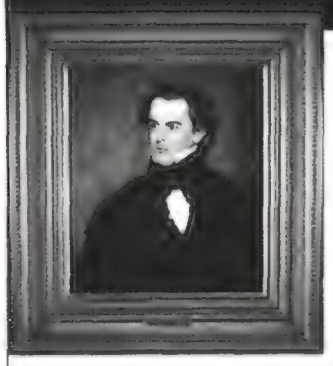

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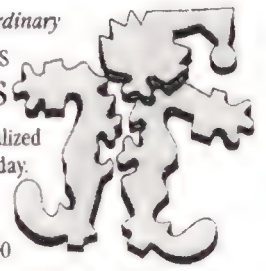

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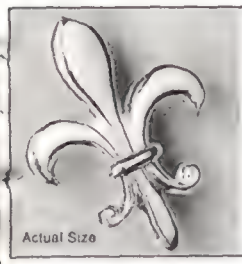

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Mother Jones: One Woman's Fight for Labor by Betsy Harvey Kraft (Clarion, $16.95) A magnificent biography tracing the career of the legendary union organizer who became known as the "miners' angel."

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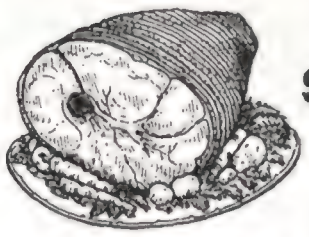

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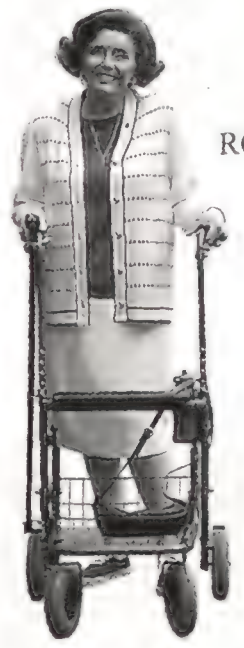

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Some Fine Grampa! by Alan Arkin, illustrated by Dirk Zimmer (HarperCollins, $14.95) Skywriting bees and polar bears who can knit one swell muffler: Grampa takes it all in stride and so should you. At once droll and discerning, an irresistible romp from the actor-author, who is some funny guy.

If You Should Hear A Honey Guide by April Pulley Sayre, illustrated by S.D. Schindler (Houghton Mifflin, $14.95) A mesmerizing armchair journey to East Africa and the bush country habitat of the honey guide, a small brown bird, its numbers diminishing, that feeds on wild honeycomb. Riveting ornithology with breathtaking images, the outstanding natural history title for 1995.

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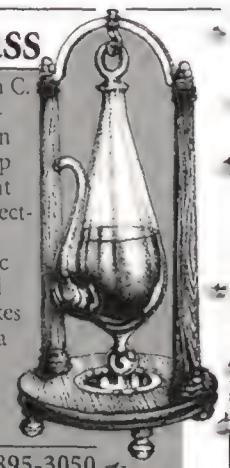

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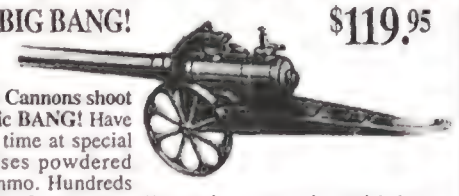

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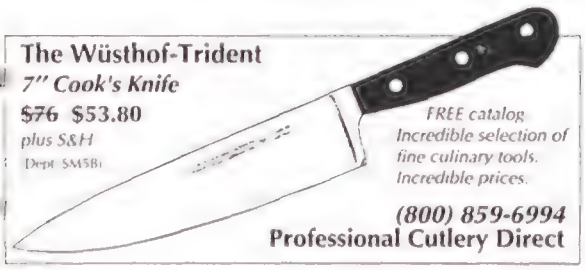

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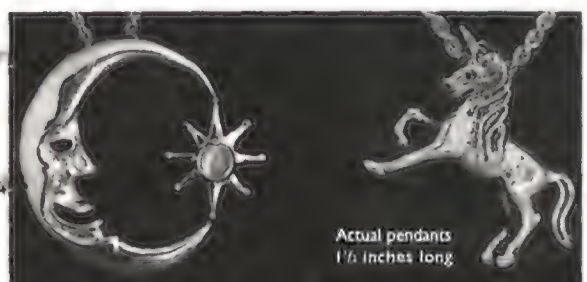

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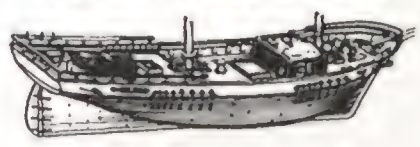

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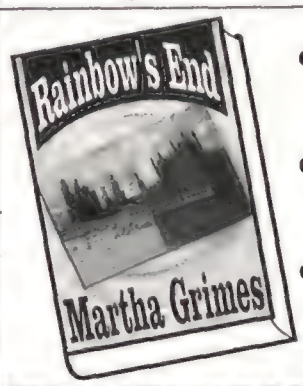

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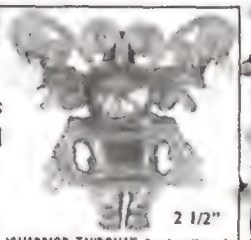

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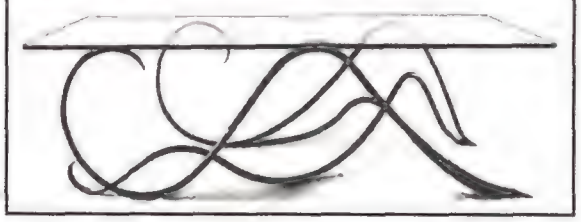

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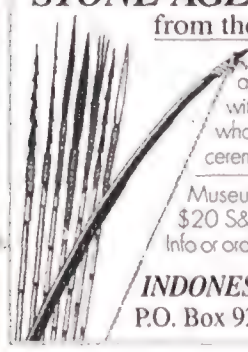

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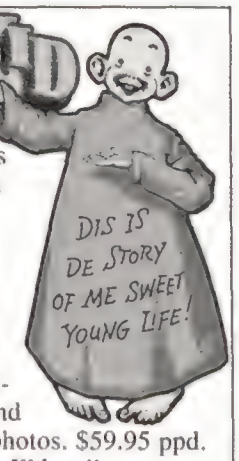

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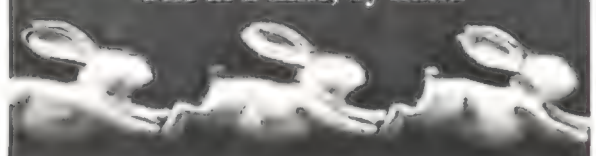

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Highlights Continued (p. 40)

Cecilia Beaux and the Art of Portraiture (exhibition catalog) by Tara Leigh Tappert, National Portrait Gallery/ Smithsonian Institution Press, 1995

Risk (p. 42)

Readings in Risk, edited by Theodore S. Glickman and Michael Gough, Resources for the Future (Washington, D.C.), 1993

Up to Your Armpits in Alligators? by John and Sean Paling, Environmental Institute (Gainesville, Florida), 1993

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Deadly Choices: Coping with Health Risks in Everyday Life by Jeffrey E. Harris, Basic Books, 1993

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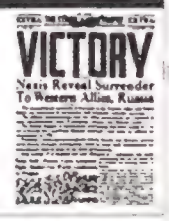

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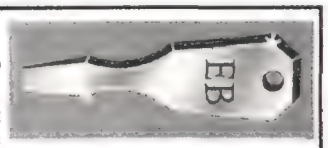

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Elvis Presley (p. 56)

Last Train to Memphis: The Rise of Elvis Presley by Pete Guralnick, Little, Brown, 1994

When Elvis Died by Neal and Janice Gregory, Communications Press (Washington, D.C.), 1980

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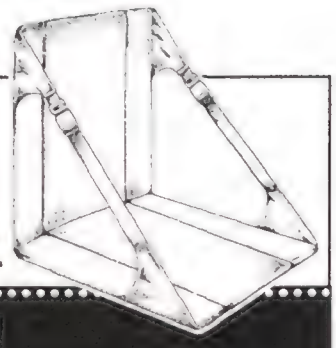

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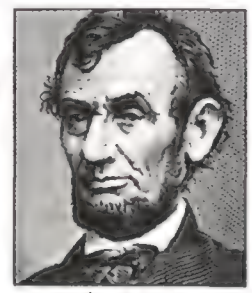

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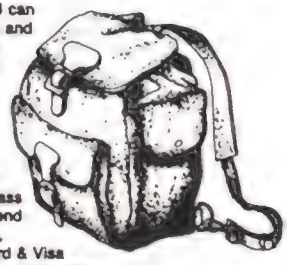

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Jane Mt. Pleasant (p. 99)

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Handbook of North American Indians, Vol. 15: Northeast by William C. Sturtevant, Smithsonian Institution Press, 1978

"The Iroquois Sustainers" by Jane Mt. Pleasant, *Northeast Indian Quarterly*, Spring/Summer 1989

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Vermeer & the Art of Painting by Arthur K. Wheelock jr., Yale University Press, 1995

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Harmonicas (p. 122)

Harmonicas, Harps, and Heavy Breathers by Kim Field, Fireside (New York), 1993

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American Harmonica Associates Newsletter, 2362 W. Territorial Road, Battle Creek, Michigan 49015

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Camino Real (p. 140)

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Pliny the Elder (p. 152)

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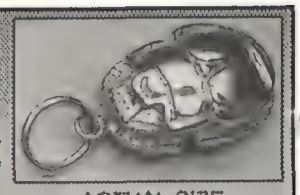

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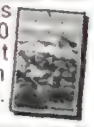

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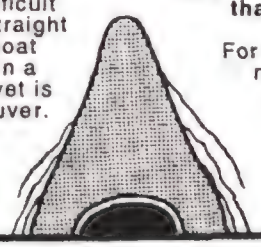

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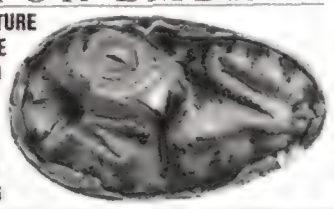

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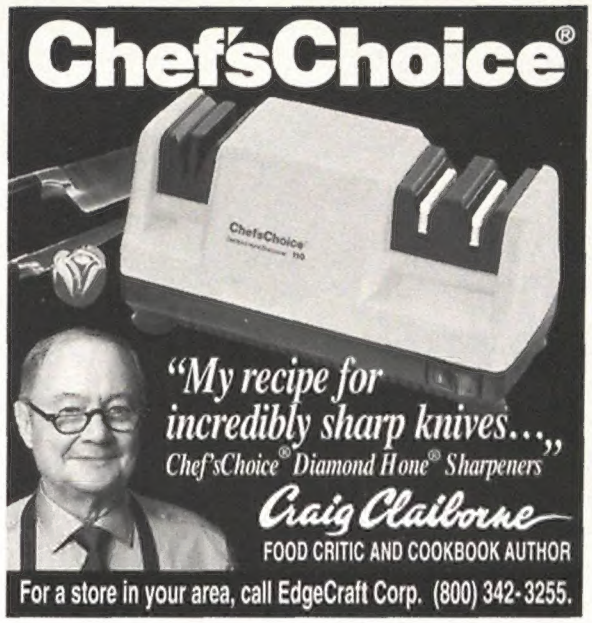
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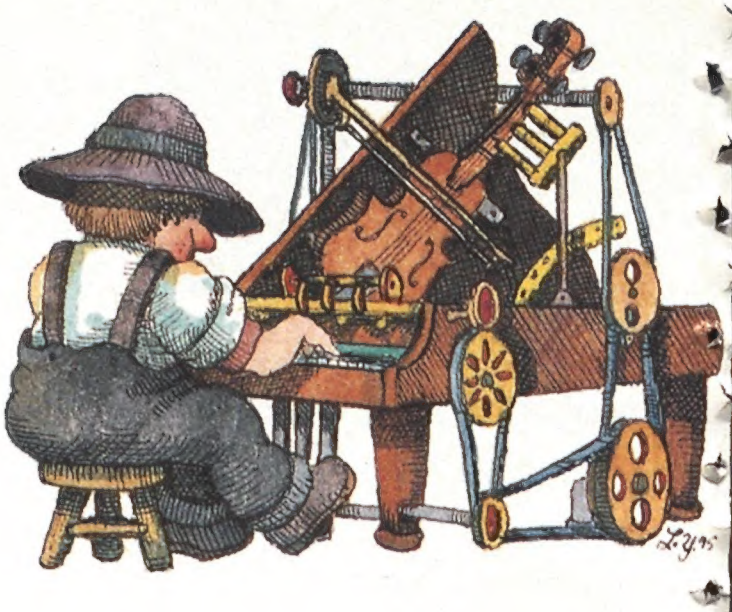
By Katharine Whittemore

Sure the piano-violin can do two things at once—but can it do them well?



One fall afternoon—red leaves, silver drizzle—a friend and I were given a tour of Canterbury Shaker Village in New Hampshire. We learned many things: how the Shakers believed in a life of unceasing prayer, for instance, with prayer defined as everything one did, said and thought. All activity was an homage to God. As such, since God is perfect, any homage to Him must also strive for perfection. Craftsmanship must not be profaned by inutility. In other words, a snug-fitting, non-squeaking hinge is a prayer. A fence that doesn't warp, because the posts are sunk in stone, is a kind of psalm.

This all sounded quite beautiful, if stern. But then our guide let on about the piano-violin. Here, it seemed, the Shaker drive toward harmonic efficiency had gotten endearingly out of hand. The piano-violin was an odd instrument, combining both keys and strings, patented by a particularly enthusiastic Shaker named Elisha D. Blakeman in 1871. I liked Brother Elisha; he'd also set up a butter-churning system activated by children on swings.

The piano-violin caught on for a while. Brother Elisha received letters from would-be agents and advertisers. He began to think it might operate as a handy tool of evangelization; fewer people were entering the Shaker community, but if they heard the instrument's sweet sound, they might long to join. The Elders, however, didn't concur, and it seems that their disapproval led to Elisha's leaving the community. He eventually married, published a book of riddles, kept inventing and died an octogenarian. As for the piano-violin, it fell into a probably well-deserved obscurity. There will never be an Isaac Vladimir Stern-Horowitz.

Brother Elisha's invention got me wondering about things that perform two functions at once. Remember that old *Saturday Night Live* advertising parody: "It's a floor wax—*and* a cake topping!" Think of Maxwell Smart's shoe phone, Skin So Soft as mosquito repellent, a clock radio.

I decided to see what other piano-violin-ish stuff might be out there. My local library's stacks offered up a children's book called *Weird and Wacky Inventions*, which profiled, among other things, the portmanteau-bathtub: you unpack your clothes, open up the sides, put in a stopper, then soap up. Another page pictured a little cylindrical contraption that grated cheese and, after you put a tiny screen inside, worked as a mousetrap.

Fifty Years of Popular Mechanics described how, in 1906, in London, fingernails served as display surfaces for tiny cameo photographs. Meanwhile, in Paris, umbrellas acted as foils in female fencing classes.

But the more I dueled with duality, the more I realized it wasn't, well, black and white. How do you define dual use? Does something have to do both things at once (the clock radio)? Or does it just have to be capable of two functions, even if they unfold at separate times (the cheese grater/mousetrap)?

Usually something that does two things does one of them better. You just know the portmanteau-bathtub was better at holding your clothes than you. Slept on a convertible sofa lately? It doesn't *want* to be a bed.

Inventors have yet to learn this lesson, however, to judge from a recent issue of the *Official Gazette of the U.S. Patent and Trademark Office*. Take the "Combined Refrigerator Water Heater," which sounds like an accident waiting to happen. Then there's the fact that, ever since Murphy, tinkerers can't seem to leave beds alone. One Catherine V. Grander, of Austin, Texas, patented the "Convertible Easel and Bed." Now, to be fair, maybe Ms. Grander's garret didn't have enough room for one easel and one bed. Flimsy as the idea sounds, the *Gazette*'s no-nonsense prose lends it a certain workmanlike plausibility.

Duality is sometimes called for out of necessity. Take Prohibition, that era of violin cases used as gun-toters. In those days, pig carcasses made excellent whisky transporters.

Sometimes dual use simply has charm. I'm fond of the "Combined Bingo Bag Kit and Seat Cushion," patented in 1992, and like to picture its inventor, Rebecca D. Harland, of New Bedford, Massachusetts, comfortable and organized at the parish hall. In 1869 Charles Singer, of South Bend, Indiana, gave us the Rocking Chair Fan, a contraption of bellows, bars and caning that offered a nicely ridiculous way of cooling off.

The New Catholic Encyclopedia says that Dualism is any theory that invokes two opposed and heterogeneous principles: Odd and Even, Good and Evil, Light and Dark, Mind and Body. We're well out of piano-violin territory here, but I think the appeal lies in the attempt to accommodate contraries that ring true to everyone. We all know, in our bones, about love-hate, about bittersweet.

How to square that, though, with Max Smart's shoe phone? It must mean *something* that "and" is one of the most ubiquitous words in the language.

I have a hard time disentangling dual use from coexistence from paradox. When Stephen Foster wrote "The sun so hot, I froze to death," did he become our dualistic patron saint? Would his songs have sounded just as good played on a piano-violin?

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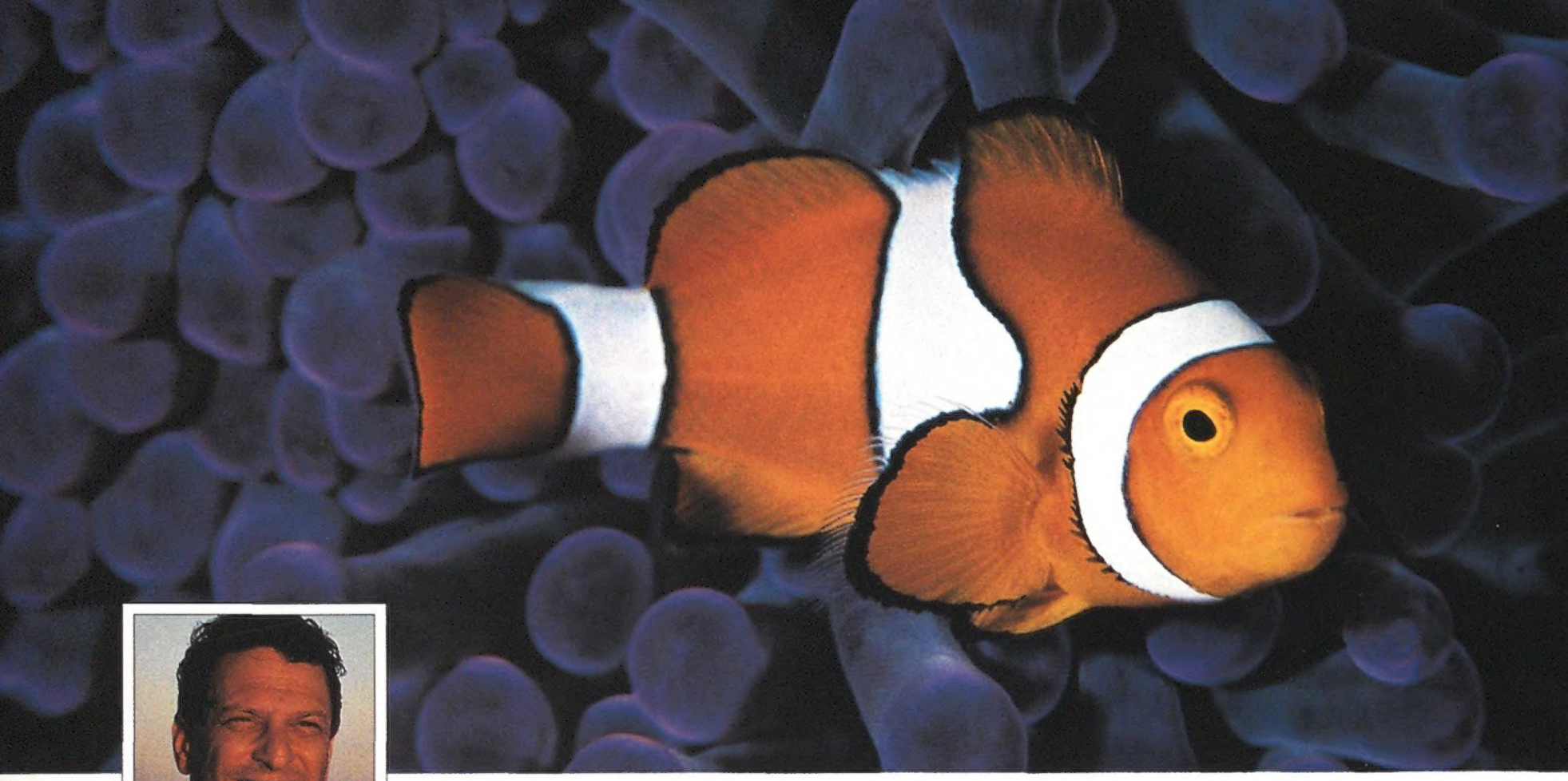

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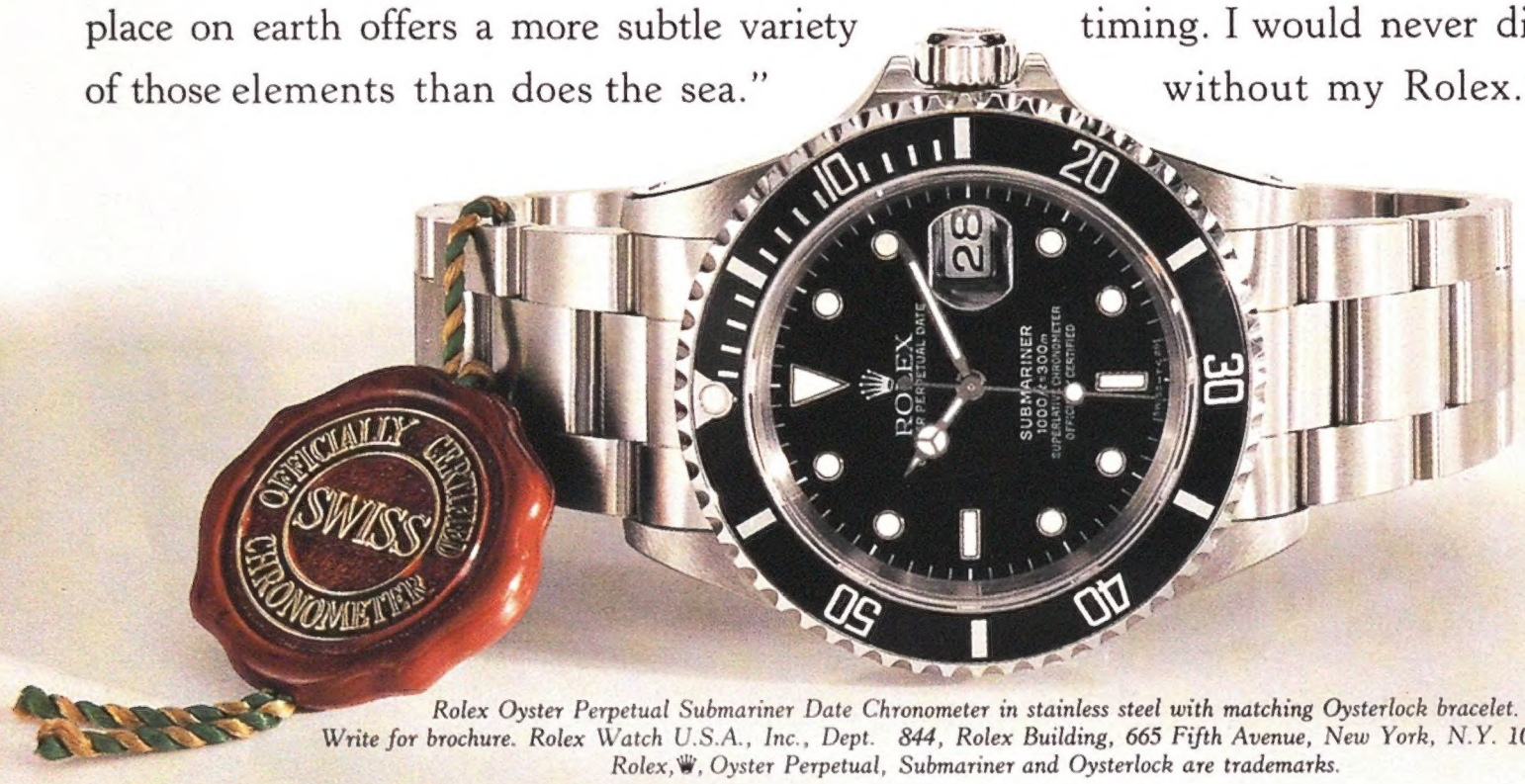

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